

HAZARDOUS MATERIALS BUSINESS PLAN



March 2010

Lawrence Berkeley National Laboratory
#1 Cyclotron Road
Berkeley, CA 94720

Main Site



February 24, 2010
DIR-10-009

Mr. Nabil Al-Hadithy
City of Berkeley
Toxics Management Division
2118 Milvia Street
Berkeley, CA 94704

Dear Mr. Al-Hadithy:

We are enclosing our annual submittal of Lawrence Berkeley National Laboratory's (LBNL's) "Hazardous Materials Business Plan." Please note the following with respect to the enclosed documents:

LBNL is a federal facility owned by the Department of Energy (DOE). In certain areas of environmental regulation, Congress has directed federal facilities to comply with state and local requirements and pay reasonable service charges. In the area of hazardous materials planning and reporting, however, while DOE facilities must comply with federal Emergency Planning and Community Right-to-Know Act (EPCRA) requirements pursuant to an Executive Order, no waiver of federal sovereign immunity from state and local regulation has occurred. Despite the lack of a sovereign immunity waiver, LBNL voluntarily complies with state requirements for hazardous materials planning and reporting. The attached report provides the information required by the state regulations.

- (1) Hazardous materials are reported if they meet or exceed state thresholds, aggregated by building.
- (2) Radioactive materials reporting is consistent with state requirements. State requirements provide for reporting of radioactive materials that are handled in quantities for which an emergency plan would be required according to the Nuclear Regulatory Commission (NRC) or the State of California, Department of Health Services (DHS) regulations. There are no radioactive materials at LBNL for which such an emergency plan would be required. All radioactive materials, including those in mixed waste, have been considered for this reporting category.
- (3) Hazardous waste reporting also is consistent with state requirements. Waste quantities located at the Hazardous Waste Handling facility have been aggregated, and quantities exceeding the state threshold are reported. Volumes of mixed waste have been considered for this reporting category due to their hazardous waste component.

Mr. Nabil Al-Hadithy

Page 2

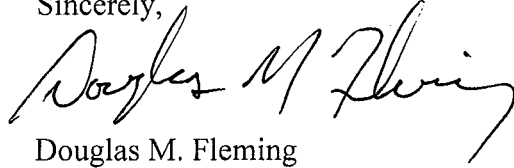
February 24, 2010

- (4) Appendix A and Appendix B are the only two forms required by the California Code of Regulations, Title 19. Additional information included in the submittal is being presented voluntarily.

We trust that this information will assist your office in serving the needs of the community regarding hazardous material disclosure information.

Please feel free to contact Jack Salazar (510) 486-6571 directly should you have any questions or wish to discuss this matter further.

Sincerely,

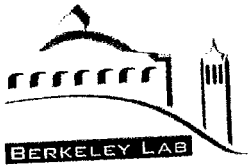
A handwritten signature in black ink, appearing to read "Douglas M. Fleming". The signature is fluid and cursive, with the first name "Douglas" being more prominent.

Douglas M. Fleming
Division Director
Environment, Health and Safety Division

DMF/JJS/CLF

Enclosures

cc: Kim Abbott, U.S. Department of Energy, Berkeley Site Office
Dan Lunsford, Berkeley Lab Emergency Management
Ron Pauer, Berkeley Lab Environmental Services Group Leader
Paul Blodgett, Berkeley Lab Health and Safety Deputy
Nancy Rothermich, Berkeley Lab Waste Management Group Leader
Gary Piermattei, Fire Prevention Program



RECEIVED

MAR 15 2010
Mary King
TOXICS MGMT. DIVISION

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DIR-10-009

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City of Berkeley
Toxics Management Division
2118 Milvia Street
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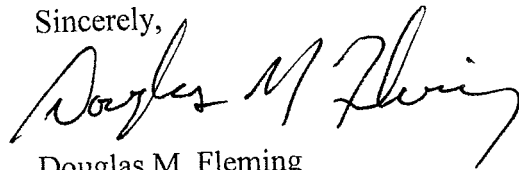
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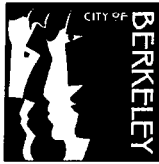


Douglas M. Fleming
Division Director
Environment, Health and Safety Division

DMF/JJS/CLF

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Nancy Rothermich, Berkeley Lab Waste Management Group Leader
Gary Piermattei, Fire Prevention Program



Planning and Development Department
Toxics Management Division

SPECIAL HAZARDS REGISTRATION

According to BMC Title 15, the following special hazards require registration and compliance with the ordinance. For copies of the compliance requirements, please contact your inspector for a copy of the ordinance.

Facility Name:	E.O. Lawrence Berkeley National Laboratory	
Facility Address:	1 Cyclotron Road, Berkeley, CA 94720	Phone: 510-486-5512

I. Etiological Agents Disclosure:

Etiological agents can be microorganisms which cause disease. The BMC defines an etiologic agent as any of the following:

- 1 An infectious substance, which is any viable microorganism, or its toxin, which causes or may cause disease in humans or animals, and includes those agents listed in 42 CFR Section 72.3 or the regulations of the Department of Health and Human Services, or any other agent that causes or may cause severe, disabling or fatal disease;
- 2 A diagnostic specimen, which is any human or animal material including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluids, being handled for purposes of diagnosis;
- 3 A biological product, which is any material prepared and manufactured in accordance with the provisions of 9 CFR parts 102, 103, or 104, or 21 CFR parts 312 or 600-680; and
- 4 A medical waste as defined in California Health and Safety Code Section 25023.2.

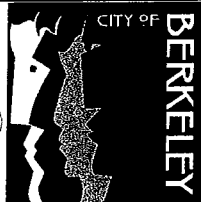
If your facility stores or handles an etiologic agent on site, you must report the agent name, quantity and storage location to the Toxics Management Division.

Biological materials at this site are handled in multiple buildings at either Biosafety Level 1 (e.g., standard LBNL lab) or Biosafety Level 2 containment (e.g., lab with biosafety cabinet), respectively. Biosafety Level 1 is suitable for work involving well-characterized agents not known to consistently cause disease in healthy adult humans and of minimal potential hazard to laboratory personnel or the environment. Biosafety Level 2 is suitable for work involving agents of moderate potential hazard to personnel and the environment. Common biological materials include Risk Group 1 microorganisms, established human cell cultures, attenuated (e.g., replication deficient) viral vectors, and very limited samples of human tissue. Some medical waste as defined by California Health and Safety Code 25023.2 is generated. Risk Group 2 human pathogens are used in very few Biosafety Level 2 laboratories. Several select agent bacteria are used in one Biosafety Level 2 laboratory in accordance with 42 CFR 73. No agents or materials that require Biosafety Level 3 or 4 containment are used at this site.

II. Radioactive Materials:

Any quantity of Radioactive Materials must be reported on the Hazardous Materials Inventory-Chemical Description page of the Hazardous Materials Business Plan.

Radioactive materials reporting is consistent with state requirements. State requirements provide for reporting of radioactive materials that are handled in quantities for which an emergency plan would be required according to the Nuclear Regulatory Commission (NRC) or the State of California, Department of Health Services (DHS) regulations. There are no radioactive materials at LBNL for which such an emergency plan would be required. All radioactive materials, including those in mixed waste, have been considered for this reporting category



City of Berkeley, Toxics Management Division
2118 Milvia Street, Suite 300
Berkeley, CA 94704
(510) 981-7460 FAX (510) 981-7470

Hazardous Materials Business Plan (HMBP) Certification Statement

For Dept Use Only – Log In/Date Stamp

I. IDENTIFICATION

FACILITY ID #

6 2

6 9 3

4 9 9 8

BUSINESS NAME (Same as Facility Name or DBA-Doing Business As)

E.O. Lawrence Berkeley National Laboratory

BUSINESS SITE ADDRESS

1 Cyclotron Road

CITY

Berkeley

104

CA

ZIP CODE

94720

II. CERTIFICATION STATEMENT

Check the appropriate boxes below and sign the certification statement.

- ☐ INITIAL SUBMITTAL: This new HMBP is being submitted for the following:
- ☐ New facility
 - ☐ Change of ownership
 - ☐ Change of business address
- ☐ ANNUAL CERTIFICATION: I have personally reviewed the HMBP currently on file with your agency, dated _____, and hereby certify, *under penalty of perjury*, that:
- The information contained in the most recent HMBP submission is complete, accurate and up to date.
 - A copy of the facility's most current Business Owner/Operator Identification page is being submitted with this certification form.
 - The facility has not begun handling any hazardous materials/hazardous wastes that are not currently listed on the most recently submitted Hazardous Materials Inventory forms.
 - There have been no significant changes (100% increase or decrease) in the quantities of any previously reported hazardous materials/hazardous wastes as reported on the most recently submitted Hazardous Materials Inventory forms.
 - The facility's annual waste amounts reported on the most recently submitted Hazardous Materials Inventory forms are accurate and expected to be the same in the next year.
 - This certification is not being made to meet annual inventory submission requirements of EPCRA. (EPCRA requires complete annual submission of the inventory, United States Code Title 42, Section 11022).
- ☒ CERTIFICATION OF CHANGES/REVISIONS: This is to certify that the HMBP has been reviewed and revisions, amendments and/or additions are necessary and are being submitted with this document. The following areas of the HBMP are affected:
- | | |
|--|---|
| <input checked="" type="checkbox"/> Entire HMBP revision | <input type="checkbox"/> Facility Site Plan/Storage Map(s) |
| <input type="checkbox"/> Business Activities page | <input type="checkbox"/> Emergency Response Plan/Contingency Plan |
| <input type="checkbox"/> Business Owner/Operator Identification page | <input type="checkbox"/> Other (Specify): _____ |
| <input type="checkbox"/> Hazardous Materials Inventory | |

I hereby certify, under penalty of perjury, that the information contained in this Hazardous Materials Business Plan is, to the best of my knowledge, true and correct. I understand that I will be required to show proof of compliance during any facility inspection conducted by City, County, State, or Federal authorities. I understand that whenever there are changes in address, ownership, business name, or operations (closure, addition of undisclosed hazardous materials or hazardous wastes, and/or contingency planning provisions) a notification of such must be made to the Toxics Management Division within 30 days of the change.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE

DATE

NAME OF SIGNER (print)

TITLE OF SIGNER

Doug Fleming

Director, EH&S Division

Agency Use Only

- ☐ HMBP accepted as submitted
☐ HMBP requires revisions – Letter sent

HMBP ACCEPTED: ____/____/____ BY: _____

City of Berkeley, Toxics Management Division

UNIFIED PROGRAM CONSOLIDATED FORM – FACILITY INFORMATION

BUSINESS ACTIVITIES

Page ____ of ____

I. FACILITY IDENTIFICATION

FACILITY ID #	6	2	6	9	3	4	9	9	8							EPA ID # (Hazardous Waste Only) CA 489 000 8986
BUSINESS NAME (Same as Facility Name or DBA-Doing Business As) E.O. Lawrence Berkeley National Laboratory																

II. ACTIVITIES DECLARATION

**NOTE: If you check YES to any part of this list,
please submit the Business Owner/Operator Identification page (OES Form 2730).**

Does your facility...		If Yes, please complete these pages of the UPCF....
A. HAZARDOUS MATERIALS Have on site (for any purpose) hazardous materials at or above 55 gallons for liquids, 500 pounds for solids, or 200 cubic feet for compressed gases (include liquids in ASTs and USTs); or the applicable Federal threshold quantity for an extremely hazardous substance specified in 40 CFR Part 355, Appendix A or B; or handle radiological materials in quantities for which an emergency plan is required pursuant to 10 CFR Parts 30, 40 or 70?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 4	HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION (OES 2731)
B. UNDERGROUND STORAGE TANKS (USTs) 1. Own or operate underground storage tanks? 2. Intend to upgrade existing or install new USTs?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 5 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 6	UST FACILITY (Formerly SWRCB Form A) UST TANK (one page per tank) (Formerly Form B) UST FACILITY UST TANK (one page per tank) UST INSTALLATION - CERTIFICATE OF COMPLIANCE (one page per tank) (Formerly Form C) UST TANK (closure portion –one page per tank)
3. Need to report closing a UST?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 7	
C. ABOVE GROUND PETROLEUM STORAGE TANKS (ASTs) Own or operate ASTs above these thresholds: ---any tank capacity is greater than 1,320 gallons, or ---the total capacity for the facility is greater than 1,320 gallons?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 8	NO FORM REQUIRED TO CUPAs
D. HAZARDOUS WASTE 1. Generate hazardous waste? 2. Recycle more than 100 kg/month of excluded or exempted recyclable materials (per HSC 25143.2)? 3. Treat hazardous waste on site?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 9 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 10 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 11	EPA ID NUMBER – provide at the top of this page RECYCLABLE MATERIALS REPORT (one per recycler) ONSITE HAZARDOUS WASTE TREATMENT – FACILITY (Formerly DTSC Forms 1772) ONSITE HAZARDOUS WASTE TREATMENT – UNIT (one page per unit) (Formerly DTSC Forms 1772 A,B,C,D and L) CERTIFICATION OF FINANCIAL ASSURANCE (Formerly DTSC Form 1232)
4. Treatment subject to financial assurance requirements (for Permit by Rule and Conditional Authorization)? 5. Consolidate hazardous waste generated at a remote site?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 12 <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 13	REMOTE WASTE / CONSOLIDATION SITE ANNUAL NOTIFICATION (Formerly DTSC Form 1196) HAZARDOUS WASTE TANK CLOSURE CERTIFICATION (Formerly DTSC Form 1249)
6. Need to report the closure/removal of a tank that was classified as hazardous waste and cleaned onsite?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO 14	
E. LOCAL REQUIREMENTS 1. Use or store hazardous materials or hazardous wastes in combined (aggregate) quantities equal to or greater than 55 gallons for liquids, 500 pounds for solids or 200 cubic feet for compressed gases? 2. Use or store any quantity of etiological agents, radioactive materials or perchlorate materials? 3. Below E.1. thresholds above, but generate any quantity of hazardous waste? 4. Generate any quantity of Universal Waste (mercury containing devices, non-empty aerosols, electronic devices, fluorescent tubes, batteries, mercury amalgam, etc.)? 5. Generate any quantity of photochemical waste on-site (x-ray and photo imaging processors)?	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 15 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 15 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 15 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 15 <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO 15	HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION (OES 2731) OR SPREADSHEET HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION (OES 2731) OR SPREADSHEET HAZARDOUS WASTE GENERATOR REPORTING PACKET SEE THE UNIVERSAL WASTE REPORTING REQUIREMENTS PAGE FOR INSTRUCTIONS IF STORED ONSITE, HAZARDOUS MATERIALS INVENTORY – CHEMICAL DESCRIPTION (OES 2731) OR SPREADSHEET

City of Berkeley, Toxics Management Division
UNIFIED PROGRAM CONSOLIDATED FORM -- FACILITY INFORMATION
BUSINESS OWNER/OPERATOR IDENTIFICATION

Page ____ of ____

I. IDENTIFICATION

FACILITY ID#	6	2	6	9	3	4	9	9	8	1	BEGINNING DATE ¹⁰⁰	ENDING DATE ¹⁰¹
											01/01/2010	12/31/2010
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) ³											BUSINESS PHONE ¹⁰²	
E.O. Lawrence Berkeley National Laboratory												
BUSINESS SITE ADDRESS ¹⁰³												
One Cyclotron Road												
CITY ¹⁰⁴										CA	ZIP CODE ¹⁰⁵	
Berkeley											94720	
DUN & BRADSTREET ¹⁰⁶										SIC CODE (4 digit #) ¹⁰⁷		
62-693-4998										8731		
COUNTY ¹⁰⁸												
Alameda												
BUSINESS OPERATOR NAME ¹⁰⁹										BUSINESS OPERATOR PHONE ¹¹⁰		
										510/486-5514		

II. BUSINESS OWNER

OWNER NAME ¹¹¹	OWNER PHONE ¹¹²
US Dept. of Energy - Lawrence Berkeley National Laboratory Site Office	510/486-4353
OWNER MAILING ADDRESS ¹¹³	
One Cyclotron Road, MS 90R1023	
CITY ¹¹⁴	STATE ¹¹⁵ ZIP CODE ¹¹⁶
Berkeley	CA 94720-8123

III. ENVIRONMENTAL CONTACT

CONTACT NAME ¹¹⁷	CONTACT PHONE ¹¹⁸
Ron Pauer	510/486-7614
CONTACT MAILING ADDRESS ¹¹⁹	
One Cyclotron Road, MS 85B0198	
CITY ¹²⁰	STATE ¹²¹ ZIP CODE ¹²²
Berkeley	CA 94720-8272

-PRIMARY-

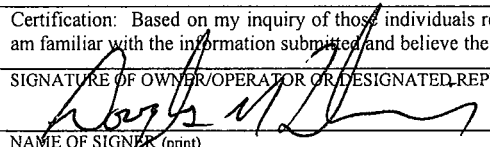
IV. EMERGENCY CONTACTS

-SECONDARY-

NAME ¹²³	NAME ¹²⁸
Alameda County Fire Department	Emergency Contact Team
TITLE ¹²⁴	TITLE ¹²⁹
Incident Commander	LBNL 24/7 Emergency Contact Team
BUSINESS PHONE ¹²⁵	BUSINESS PHONE ¹³⁰
Non-Emergency 925-447-4257	510/486-4050
24-HOUR PHONE ¹²⁶	24-HOUR PHONE ¹³¹
9-911	Emergency 510/486-6999
PAGER # ¹²⁷	PAGER # ¹³²
N/A	N/A

ADDITIONAL LOCALLY COLLECTED INFORMATION:

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE	DATE ¹³⁴	NAME OF DOCUMENT PREPARER ¹³⁵
	February 24, 2010	Jack Salazar
NAME OF SIGNER (print) ¹³⁶	TITLE OF SIGNER ¹³⁷	
Doug Fleming	Director, EH&S Division	

Appendix B
Abbreviations

COLUMNS 13 & 15

EX	Explosive
FS	Flammable solid
FL	Flammable liquid
FG	Flammable gas
C	Combustible liquid
NFG	Nonflammable gas
W	Water reactive
UR	Unstable reactive
OX	Oxidizer
EXP	Organic peroxide
PYR	Pyrophoric
CYR	Cryogenic
COR	Corrosive
RAD	Radioactive
IRR	Irritant
OHH	Other health hazard
TOX	Toxic
HTOX	Highly toxic

COLUMNS 18

A	Acute health hazard
C	Chronic health hazard
F	Fire hazard
R	Reactive hazard
P	Pressure release hazard

COLUMNS 26

AGT	Above ground tank
UGT	Underground tank
ATB	Tank in building
SD	Steel drum
PD	Plastic drum
CAN	Can
CAR	Carboy
SI	Silo
FD	Fiber drum
BAG	Bag
BOX	Box
CYL	Cylinder
GB	Glass bottle
TB	Tote bin
TW	Tank wagon
RC	Rail

TEMPERATURE/PRESSURE

1	Ambient
2	High
3	Low

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S
1	E.O. Lawrence Berkeley National Laboratory																
2																	
3	9	10	11	12	13	14	17	18	19	20	21	22	23	24	25	26	27
4	Name	Chemical	Trade	EHS	FC	Pure	State	Fed	State	Waste	Largest	Unit	Max	Ave	Ann		
5	Common	Cas N	Secret	Class	Class	Mix	Haz	Cat	Code	days	Cont		Daily	Waste	Cont	Press	Temp
6	(components)																
56	CARBON MONOXIDE	630-08-0	N	N	TOX	P	GAS	A		365	150	CFT	300	300		CYL	2 1
57	ARGON	7440-37-1	N	N		P	GAS	P		365	220	CFT	444	444		CYL	2 1
58	OXYGEN	7782-44-7	N	N	OX	P	GAS	P		365	220	CFT	220	220		CYL	2 1
59																	
60	Building 26																
61	ARGON	7440-37-1	N	N		P	GAS	P		365	1250	CFT	1250	1250		CYL	2 1
62	HYDROGEN	1333-74-0	N	N	FG	P	GAS	F		365	460	CFT	690	690		CYL	2 1
63																	
64	Building 31 (P)																
65	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	160	GAL	160	160		AGT	1 1
66	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	50	GAL	50	50		AGT	1 1
67	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	195	GAL	195	195		AGT	1 1
68																	
69	BUILDING 37																
70	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	500	GAL	500	500		AGT	1 1
71																	
72	BUILDING 46																
73	ARGON	7440-37-1	N	N		P	GAS	P		365	200	CFT	400	400		CYL	2 1
74	HELIUM	7440-59-7	N	N		P	GAS	P		365	200	CFT	400	400		CYL	2 1
75	NITROGEN, LIQUID	7727-37-9	N	N	OHH	P	LIQ	P		365	1496	GAL	1496	1496		AGT	2 4
76	CARBON DIOXIDE	124-38-9	N	N	OX	P	GAS	F		365	230	CFT	460	460		CYL	2 1
77	NITROGEN	7727-37-9	N	N	OHH	P	GAS	P		365	230	CFT	230	230		CYL	2 1
78																	
79	BUILDING 48																
80	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	367	GAL	367	367		AGT	1 1
81																	
82	Building 50 Complex																
83	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	275	GAL	275	275		AGT	1 1
84	HELIUM	7440-59-7	N	N		P	GAS	P		365	853	CFT	253	253		CYL	2 1
85																	
86	Building 51 (F)																
87	CARBON DIOXIDE	124-38-9	N	N	OX	P	GAS	F		365	438	CFT	438	438		CYL	2 1
88	NITROGEN	7727-37-9	N	N	OHH	P	GAS	P		365	230	CFT	230	230		CYL	2 1
89	HELIUM	7440-59-7	N	N		P	GAS	P		365	230	CFT	230	230		CYL	2 1
90																	
91	BUILDING 51 (P)																
92	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	160	GAL	160	160		AGT	1 1
93	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	50	GAL	50	50		AGT	1 1
94	DIESEL FUEL	000169-00-0	N	N	IRR	P	LIQ	F		365	195	GAL	195	195		AGT	1 1
95																	
96	Building 53																
97	ARGON	7440-37-1	N	N		P	GAS	P		365	219	CFT	687	687		CYL	2 1
98	HYDROGEN	1333-74-0	N	N	FG	P	GAS	F		365	244	CFT	244	244		CYL	2 1
99	HELIUM	7440-59-7	N	N		P	GAS	P		365	244	CFT	244	244		CYL	2 1
100	ETHYLENE	74-85-1	N	N	FG	P	GAS	F		365	244	CFT	244	244		CYL	2 1
101	OXYGEN	7782-44-7	N	N	OX	P	GAS	P		365	244	CFT	244	244		CYL	2 1
102	NITROGEN	7727-37-9	N	N	OHH	P	GAS	P		365	244	CFT	387	387		CYL	2 1
103																	

		B		C		D	E	F			H	I	J	K	L	M	N	O	P	Q	S
1	E.O. Lawrence Berkeley National Laboratory																				
2																					
3																					
4	9	8 & 30																			
5	Name	Chemical																			
6	Common	Name																			
		(components)																			
104	Building 55																				
105	DIESEL FUEL																				
106	NITROGEN, LIQUID																				
107	OXYGEN																				
108	METHANE																				
109	ARGON																				
110	HELIUM																				
111	NITROGEN																				
112	SODIUM HYDROXIDE																				
113	SODIUM HYPOCHLORITE																				
114																					
115	Building 56																				
116	OXYGEN																				
117	ARGON																				
118	HELIUM																				
119	NITROGEN																				
120	HYDROGEN																				
121	P-10 GAS																				
122																					
123																					
124	Building 58																				
125	OXYGEN																				
126	ACETYLENE																				
127																					
128	Building 058A																				
129	TRANSFORMER OIL																				
130	CARBON DIOXIDE																				
131	SULFUR HEXAFLUORIDE																				
132	ARGON																				
133	NITROGEN																				
134	NITROGEN, LIQUID																				
135	CARBON DIOXIDE																				
136	DIALA AX OIL																				
137																					
138																					
139																					
140	Building 58B																				
141	VACUUM PUMP OIL																				
142																					
143	Building 60																				
144	SULFUR HEXAFLUORIDE																				
145	HELIUM																				
146																					
147	Building 62																				
148	ARGON																				
149	CARBON DIOXIDE																				
150	METHANE																				
151	HELIUM																				
152	HYDROGEN																				

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	B																	
	E.O. Lawrence Berkeley National Laboratory																	
2																		
3	9	8 & 30	10	11	12	13	14	17	18	19	20	21	23	24	25	26	27	
4	Name	Chemical		Trade	FC	Pure	Mix	State	Fed	State	days	Largest	Max	Ave	Ann		28	
5	Common	Name	Cas N	Secret	EHS	Class		State	Haz Cat	Waste		Cont	Unit	Daily	Waste	Cont	Press Temp	
6	(components)	(components)								Code								
157																		
158	Building 62B																	
159	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	55	GAL	55		AGT	1	
160																	1	
161	Building 63																	
162	METHANE	Methane	74-82-8	N	N	FG	P	GAS	F		365	200	CFT	201		CYL	2	
163	FREON MIX	Freons		N	N	CRY	M	GAS	P		365	200	CFT	400		CYL	2	
164	SULFUR HEXAFLUORIDE	Sulfur Hexafluoride	2551-62-4	N	N	OHH	P	GAS	C		365	748	CFT	2252		CYL	2	
165	HELIUM	Helium	7440-59-7	N	N		P	GAS	P		365	200	CFT	200		CYL	2	
166	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	200	CFT	205		CYL	2	
167	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		P	GAS	P		365	200	CFT	600		CYL	2	
168	CARBON MONOXIDE	Carbon Monoxide	630-08-0	N	N	TOX	P	GAS	A		365	200	CFT	325		CYL	2	
169	NEON / KRYPTON MIX	Neon	7440-019	N	N		MIX	GAS	P		365	200	CFT	200		CYL	2	
170		Krypton	7439-90-9	N	N												1	
171	SULFUR HEXAFLUORIDE	Sulfur Hexafluoride	2551-62-4	N	N	OHH	P	LIQ	C		365	748	GAL	898		CYL	2	
172	CARBON DIOXIDE / AIR MIX	Carbon Dioxide	124-38-9	N	N		MIX	LIQ	P		365	150	GAL	150		CYL	2	
173																	1	
174	Building 64/64C																	
175	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	250	GAL	250		AGT	1	
176	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	6000	GAL	6000		AGT	1	
177	ACETYLENE	Ethyne	74-86-2	N	N	FG	P	GAS	F		365	73	LBS	73		CYL	2	
178	OXYGEN	Oxygen	7782-44-7	N	N	OX	P	GAS	F		365	50	LBS	50		CYL	2	
179	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		P	GAS	P		365	150	CFT	4002		CYL	2	
180	ARGON	Argon	7440-37-1	N	N		P	GAS	P		365	100	LBS	100		CYL	2	
181	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	50	LBS	50		CYL	2	
182	HYDROGEN	Hydrogen	1333-74-0	N	N	FG	P	GAS	F		365	300	CFT	600		CYL	2	
183	NITROGEN, LIQUID	Nitrogen	7727-37-9	N	N	CRY	P	LIQ	P		365	28426	GAL	28426		AGT	2	
184																	4	
185	Building 66																	
186	ARGON	Argon	7440-37-1	N	N		P	GAS	P		365	281	CFT	2097		CYL	2	
187	METHANE	Methane	74-82-8	N	N	FG	P	GAS	F		365	222	CFT	527		CYL	2	
188	COMPRESSED GAS N.O.S.			N	N		M	GAS	P		365	200	CFT	200		CYL	2	
189	HELIUM	Helium	7440-59-7	N	N		P	GAS	P		365	222	CFT	4553		CYL	2	
190	HYDROGEN	Hydrogen	1333-74-0	N	N	FG	P	GAS	F		365	222	CFT	3243		CYL	2	
191	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	220	CFT	3673		CYL	2	
192	OXYGEN	Oxygen	7782-44-7	N	N	OX	P	GAS	F		365	222	CFT	1819		CYL	2	
193	NITROGEN, LIQUID	Nitrogen	7727-37-9	N	N	OHH	P	LIQ	P		365	222	CFT	1496		AGT	2	
194	NITROGEN, LIQUID	Nitrogen	7727-37-9	N	N	OHH	P	LIQ	P		365	63	GAL	157		CYL	2	
195	DIESEL FUEL	Ethylene	000169-00-0	N	N	IRR	P	LIQ	F		365	450	GAL	450		AGT	1	
196	ETHYLENE	Neon	74-85-1	N	N	FG	P	LIQ	F		365	200	CFT	200		CYL	2	
197	NEON	Ethane	7440-019	N	N		P	LIQ	P		365	200	CFT	204		CYL	2	
198	ETHANE	Ethane	74-84-0	N	N	FG	P	GAS	F		365	220	CFT	224		CYL	2	
199	CARBON MONOXIDE	Carbon Monoxide	630-08-0	N	N	TOX	P	GAS	A		365	200	CFT	272		CYL	2	
200	ACETONE	Acetone	67-64-1	N	N	FL	P	LIQ	C		365	25	GAL	76		GB	1	
201	ISOPROPYL ALCOHOL	Isopropyl Alcohol	67-63-0	N	N	FL	P	LIQ	F		365	25	GAL	61		GB	1	
202																		
203	Building 67																	
204	OXYGEN	Oxygen	7782-44-7	N	N	OX	P	GAS	F		365	249	CFT	1417		CYL	2	
205	METHANE	Methane	74-82-8	N	N	FG	P	GAS	F		365	260	CFT	1500		CYL	2	
206	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		P	GAS	P		365	960	CFT	1750		CYL	2	

			B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	S
1	E.O. Lawrence Berkeley National Laboratory																	
2																		
3	9	8 & 30		10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4	Name	Chemical			Trade	EHS	FC	Pure		State	Waste	days	Largest	Unit	Max	Ave	Ann	
5	Common	Name	Cas N		Secret		Class	Mix	Haz Cat	Code			Cont		Cont	Press	Temp	
6	(components)																	
207	ARGON	Argon	7440-37-1		N	N		P	P	GAS			365	CFT	3560		CYL	2
208	HELIUM	Helium	7440-59-7		N	N		P	P	GAS			365	CFT	1988		CYL	2
209	HYDROGEN	Hydrogen	1333-74-0		N	N	FG	P	F	GAS			365	CFT	2950		CYL	2
210	NITROGEN	Nitrogen	7727-37-9		N	N	OHH	P	P	GAS			365	CFT	1540		CYL	2
211	SULFUR HEXAFLUORIDE	Sulfur Hexafluoride	2551-62-4		N	N	OHH	P	C	GAS			365	CFT	220		CYL	2
212	SIANE		7803-62-5		N	N	FG	P	F	GAS			365	CFT	210		CYL	2
213	SILICON TETRAFLUORIDE		10026-04-7		N	N	TOX CC	P	C	LIQ			365	GAL	75		GB	1
214	ETHANOL	Ethanol	64-17-5		N	N	FL	P	P	LIQ			365	GAL	55		GB	1
215																		
216	Building 68																	
217	DIESEL FUEL		000169-00-0		N	N	IRR	P	F	LIQ			365	GAL	150		AGT	1
218																		
219	Building 70																	
220	ARGON	Argon	7440-37-1		N	N		P	P	LIQ			365	GAL	188		CYL	2
221	ARGON	Argon	7440-37-1		N	N		P	P	GAS			365	CFT	8008		CYL	2
222	CARBON DIOXIDE	Carbon Dioxide	124-38-9		N	N		P	P	GAS			365	CFT	2871		CYL	2
223	CARBON MONOXIDE	Carbon Monoxide	630-08-0		N	N	TOX	P	A	GAS			365	CFT	810		CYL	2
224	ETHANE, 1,2-DIBROMO-1,1-DIFLUORO-		75-82-1		N	N	FG	P	F	GAS			365	CFT	270		CYL	2
225	FEON 12		75-71-8		N	N	CRY	P	P	GAS			365	CFT	582		CYL	2
226	FEON MIX	Freon 12	75-71-8		N	N	CRY	M	P	GAS			365	CFT	400		CYL	2
227		Freon 114	76-14-2															
228	HELIUM	Helium	7440-59-7		N	N		P	P	GAS			365	CFT	4657		CYL	2
229	HEXAFLUOROBENZENE	Hexafluorobenzene	392-56-3		N	N	TOX	P	C	GAS			365	CFT	450		CYL	2
230	METHANE	Methane	74-82-8		N	N	FG	P	F	GAS			365	CFT	2074		CYL	2
231	NITROGEN	Nitrogen	7727-37-9		N	N	OHH	P	P	GAS			365	CFT	8986		CYL	2
232	OXYGEN	Oxygen	7782-44-7		N	N	OX	P	F	GAS			365	CFT	1900		CYL	2
233	PERFLUORO CARBON MIX				N	N	IRR	M	P	GAS			365	CFT	225		CYL	2
234	PERFLUOROMETHYL CYCLOHEXANE		355-02-2		N	N	IRR	P	P	GAS			365	CFT	450		CYL	2
235	PERFLUORO-1,3-DIMETHYL CYCLOHEXANE		335-27-9		N	N	IRR	P	P	GAS			365	CFT	732		CYL	2
236	DIESEL FUEL		000169-00-0		N	N	IRR	P	F	LIQ			365	GAL	430		AGT	1
237	ETHYLENE	Ethylene	74-85-1		N	N	FG	P	F	GAS			365	CFT	200		CYL	2
238	PERFLUORODIMETHYL CYCLO BUTANE				N	N	IRR	P	P	GAS			365	CFT	200		CYL	2
239	NITROGEN, LIQUID	Nitrogen	7727-37-9		N	N	OHH	P	P	LIQ			365	GAL	1496		AGT	2
240	NEON	Neon			N	N		P	P	LIQ			365	GAL	1496		CYL	2
241	NEON	Neon			N	N		P	P	LIQ			365	GAL	452		CYL	2
242	HYDROGEN	Hydrogen	1333-74-0		N	N	FG	P	F	GAS			365	CFT	3160		CYL	2
243	AMMONIA	Ammonia			N	N		P	P	GAS			365	CFT	452		CYL	2
244	SULFUR HEXAFLUORIDE	Sulfur Hexafluoride	2551-62-4		N	N	OHH	P	C	LIQ			365	GAL	1496		CYL	2
245	PROPENE	Propene	115-07-1		N	N	FG	P	F	GAS			365	CFT	800		CYL	2
246	BATTERY ELECTROLYTE	Sulfuric Acid	684-93-9		N	N	CORR	P	C	LIQ			365	GAL	2642		CAN	1
247	METHANOL	Methyl alcohol	67-56-1		N	N	FL	P	F	LIQ			365	GAL	57		GB	1
248	SULFUR DIOXIDE		9157440		N	N	TO CO	P	C	GAS			365	LB	50		CYL	2
249	2,5,8,11,14-PENTA OXAPENTADECANE		143-24-8		N	N	FL	P	C	LIQ			365	GAL	66			1
250																		
251	Building 070A																	
252	ARGON	Argon	7740-37-2		N	N		P	P	GAS			365	CFT	9000		CYL	2
253	METHANE	Methane	74-82-8		N	N	FG	P	F	GAS			365	CFT	200		CYL	2
254	HELIUM	Helium	7440-59-7		N	N		P	P	GAS			365	CFT	9405		CYL	2
255	HYDROGEN	Hydrogen	1333-74-0		N	N	FG	P	F	GAS			365	CFT	4850		CYL	2
256	HYDROGEN	Hydrogen	1333-74-0		N	N	FG	P	F	GAS			365	LB	50		CYL	2

	B			C	D	E	F		H	I	J	K	L	M	N	O	P	Q	S
1	E.O. Lawrence Berkeley National Laboratory																		
2																			
3	9	8 & 30	10	11	12	13	14	17	18	19	20	21	22	23	24	25	26	27	28
4	Name	Chemical		Trade	FC	Class	Pure	State	Fed	State	Waste	Largest	Unit	Max	Ave	Ann			
5	Common	Name	Cas N	Secret	EHS		Mix	Haz	Cat	Waste	days	Cont		Daily	Daily	Waste	Cont	Press	Temp
6		(components)								Code									
257	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	600	CFT	12036	12036		CYL	2	1
258	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	983	GAL	983	983		AGT	1	1
259	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	50	GAL	50	50		AGT	1	1
260	GLYCOLS, POLYETHYLENE, MONO(p-1,1,3,3-T)		9002-93-1	N	N	IRR	P	LIQ	C		365	100	GAL	100	100		SD	1	1
261	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N	OX	P	GAS	F		365	230	CFT	9289	9289		CYL	2	1
262	OXYGEN	Oxygen	7782-44-7	N	N	OHH	P	GAS	F		365	220	CFT	620	620		CYL	2	1
263	NITROGEN, LIQUID	Nitrogen	7727-37-9	N	N	FG	P	LIQ	P		365	42	GAL	154	154		CYL	2	1
264	DEUTERIUM		7782-39-0	N	N	FG	P	GAS	F		365	200	CFT	400	400		CYL	2	4
265	ARGON	Argon	7740-37-2	N	N	FG	P	LIQ	P		365	34410	CFT	34458	34458		CYL	2	4
266	CHLOROMETHANE		74-87-3	N	N	FG	P	GAS	F		365	200	CFT	200	200		CYL	2	1
267	CARBON MONOXIDE	Carbon Monoxide	630-08-0	N	N	TOX	P	GAS	A		365	219	CFT	219	219		CYL	2	1
268	NITROUS OXIDE	Nitrous Oxide	10024-97-2	N	N	TOX	P	GAS	A		365	219	CFT	219	219		CYL	2	1
269																			
270	METHANE	Methane	74-82-8	N	N	FG	P	GAS	F		365	200	CFT	200	200		CYL	2	1
271																			
272	Building 71A																		
273	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	228	CFT	228	228		CYL	2	1
274																			
275	Building 72																		
276	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	1000	GAL	1000	1000		AGT	1	1
277	ARGON	Argon	7740-37-2	N	N		P	GAS	P		365	220	CFT	433	433		CYL	2	1
278	HELIUM	Helium	7440-59-7	N	N		P	GAS	P		365	220	CFT	220	220		CYL	2	1
279	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	426	CFT	1306	1306		CYL	2	1
280																			
281	Building 72C																		
282	SULFUR HEXAFLUORIDE	Sulfur Hexafluoride	2551-62-4	N	N	OHH	P	GAS	C		365	220	CFT	440	440		CYL	2	1
283	ARGON	Argon	7740-37-2	N	N		P	GAS	P		365	220	CFT	440	440		CYL	2	1
284	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	220	CFT	1100	1100		CYL	2	1
285																			
286	Building 74																		
287	ETHANOL	Ethanol	64-17-5	N	N	FL	P	LIQ	P		365	125	GAL	565	565		GB	1	1
288																			
289	Building 75																		
290	ARGON	Argon	7440-37-1	N	N		P	GAS	P		365	229	CFT	229	229		CYL	2	1
291																			
292	Building 76																		
293	UNLEADED GASOLINE		8006-61-9	N	N	IR/CR	P	LIQ	F		365	10000	GAL	10000	10000		UGT	1	1
294	DIESEL FUEL		000169-00-0	N	N	IRR	P	LIQ	F		365	10000	GAL	10000	10000		UGT	1	1
295	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P		365	230	CFT	230	230		CYL	2	1
296	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		P	GAS	P		365	220	CFT	220	220		CYL	2	1
297	ETHANOL	Ethanol	64-17-5	N	N	FL	P	LIQ	P		365	4000	GAL	4000	4000		AGT	1	1
298																			
299	Building 77																		
300	DTE 24-OIL		003047-00-0	N	N	IRR	P	LIQ	C		365	55	GAL	110	110		SD	1	1
301	ZEP FORMULA-50	Sodium Hydroxide	1310-73-2	N	N	TOX	M	LIQ	C		365	55	GAL	55	55		PD	1	1
302		Sodium Carbonate	497-19-8	N	N														
303		Trithanolamine	102-71-6	N	N														
304	ARGON	Argon	7440-37-1	N	N		P	GAS	P		365	1220	CFT	2440	2440		CYL	2	1
305	HELIUM		7440-59-7	N	N		P	GAS	P		365	1220	CFT	2440	2440		CYL	2	1

		B																					
1		E.O. Lawrence Berkeley National Laboratory																					
2																							
3																							
4	9	8 & 30																					
5	Name	Chemical																					
6	Common	Name																					
		(components)																					
306	NITROGEN	Nitrogen	7727-37-9	N	N	EHS	12	13	FC	14	17	18	19	20	K	L	M	N	O	P	Q	R	S
307	OXYGEN	Oxygen	7782-44-7	N	N		N	OHH	P	Pure	State	Fed	State	Waste	days	Largest	Unit	CFT	3960				
308				N	N		N	FG	P		GAS	F		365	122	CFT	244	244					
309	TRIM SOL COOLANT	Petroleum Oil	8002-05-9	N	N		N	IRR	M	M	LIQ	C		365	55	GAL	165	165					
310		Petroleum Sulfonate	68410-99-2	N	N																		
311		Chlorinated Alkane Polymer	68410-99-2	N	N																		
312	VAC-2 OIL			N	N		N	IRR	P	P	LIQ	C		365	55	GAL	254	254					
313	DIESEL FUEL		000169-00-0	N	N		N	IRR	P	P	LIQ	IRR		365	200	GAL	200	200					
314	909 CLEANER, TANK 1-7, 1-5	Sodium Metasilicate	6834-92-0	N	N		N	IRR TO	M	M	SOL	C		365	500	GAL	500	500					
315	BN CLEANER, TANK 2-8	Sodium Hydroxide	1310-73-2	N	N		N	OX CO	M	M	LIQ	C		365	250	GAL	250	250					
316		Nitrioltriacetic Acid	5064-31-3	N	N																		
317	ALUMINUX 1000, TANK 2-6	Sodium Hydroxide	1310-73-2	N	N		N	IRR TO	M	M	LIQ	C		365	250	GAL	250	250					
318	HYDROCHLORIC ACID (15%), TAN	Hydrochloric Acid	7647-01-0	N	N		N	COR	P	P	LIQ	C		365	75	GAL	75	75					
319	ELECTROPOLISH, TANK 1-2	Phosphoric Acid	7664-38-2	N	N		N	IRR CO	M	M	LIQ	C		365	250	GAL	250	250					
320		Sulfuric Acid	7664-93-9	N	Y																		
321	M.F. ACID, TANK 2-4	Ammonium Bifluoride	1341-49-7	N	N		N	IRR CO	P	P	LIQ	C		365	250	GAL	250	250					
322	PONDAX, TANK 2-1	Sodium Bisulfate	7681-38-1	N	N		N	OR TO	M	M	SOL	C		365	250	GAL	250	250					
323		Ammonium Fluorosilicate	1309-32-6	N	N																		
324	BRITE DIP, TANK 3-4	Acetic Acid	64-19-7	N	N		N	TOX IRR	M	M	LIQ	A		365	100	GAL	100	100					
325		Chromic Acid	1333-82-0	N	N																		
326		Nitric Acid	7697-37-2	N	Y																		
327	BRITE DIP, TANK 3-2	Sulfuric Acid	7664-93-9	N	Y		N	IRR CO	M	M	LIQ	C		365	100	GAL	100	100					
328		Nitric Acid	7697-37-2	N	Y																		
329	ANODIZE TANK (15% sulfuric acid)	Sulfuric Acid	7664-93-9	N	Y		N	IRR CO	M	M	LIQ	C		365	250	GAL	250	250					
330	ELECTROLESS NICKEL TANK	Nickel Sulfate	7786-81-4	N	N		N	TOX IRR	M	M	LIQ	C		365	250	GAL	250	250					
331		Ammonium Hydroxide	1336-21-6	N	N																		
332	LACQUER THINNER	Acetone	000407-00-0	N	N		N	FL	P	P	LIQ	F		365	55	GAL	55	55					
333	ACETONE		67-64-1	N	N		N	FL	P	P	LIQ	C		365	42	GAL	85	85					
334	SULFUR HEXAFLUORIDE	Sulfur Hexafluoride	2551-62-4	N	N		N	OHH	P	P	GAS	C		365	244	CFT	244	244					
335	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		N		P	P	GAS	P		365	732	CFT	1400	1400					
336	ACETYLENE	Ethyne	74-86-2	N	N		N	FG	P	P	GAS	F		365	976	CFT	976	976					
337																							
338	Building 77J																						
339	SODIUM METABISULFATE		7681-57-4	N	N		N	IRR	P	P	SOL	IRR		365	50	LBS	1200	600			BAG	1	1
340																							
341	Building 77K																						
342	BLUE GOLD EVERCLEAN																						
343	FAST GOLD LN			N	N		N	IRR TO	M	M	LIQ	C		365	55	GAL	220	110			PD	1	1
344	ELECTROLESS NICKEL TANK	Nickel Sulfate	7786-81-4	N	N		N	TOX IRR	M	M	LIQ	C		365	55	GAL	220	110			PD	1	1
345		Ammonium Hydroxide	1336-21-6	N	N																PD	1	1
346																							
347	Building 77L																						
348	CAUSTIC SODA, 50%	Sodium Hydroxide	1310-73-2	N	N		N	COR	P	P	SOL	C		365	55	GAL	110	55			PD	1	1
349	SODIUM HYDROXIDE	Sodium Hydroxide	1310-73-2	N	N		N	COR	P	P	SOL	C		365	55	GAL	220	110			PD	1	1
350	909 CLEANER	Sodium Metasilicate	6834-92-0	N	N		N	IRR TO	M	M	SOL	C		365	400	LBS	1200	800			PD	1	1
351																							
352	Building 77M																						
353	IRON CHLORIDE	Iron Chloride	7705-08-0	N	N		N	IRR	P	P	LIQ	C		365	55	GAL	560	120			PD	1	1
354	SULFURIC ACID	Sulfuric Acid	7664-93-9	N	Y		N	IRR CO	M	M	LIQ	C		365	85	GAL	440	220			PD	1	2

E.O. Lawrence Berkeley National 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OIL																		368 DTE 24-OIL																		369 DTE-26 OIL																		370 DTE LIGHT OIL																		371 DTE MEDIUM																		372 ISOPROPYL ALCOHOL																		373 KEROSENE																		374 MPO-180 VACUUM PUMP OIL																		375 SHELL MORLINA OIL 220																		376 TURBINE OIL HEAVY																		377 TURBINE OIL HEAVY/MEDIUM																		378 VELO-6 OIL																		379 ZEP FORMULA-50																		380																		381																		382 LACQUER THINNER																		383																		384 Building 80																		385 NITROGEN, LIQUID																		386																		387 Building 82																		388 DIESEL FUEL																		389																		390 Building 83																		391 DIESEL FUEL																		392																		393 Building 84																		394 DIESEL FUEL																		395 NITROGEN, LIQUID																		396 OXYGEN																		397 NITROGEN																		398 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1	E.O. Lawrence Berkeley National Laboratory																			
2																				
3	9	8 & 30		10	11	12	13	14	17	18	19	20	21	22	23	24	25	26	27	28
4	Name	Chemical					FC	Pure	State	Fed	State	Waste	Largest	Unit	Max	Ave	Ann			
5	Common	Name		Cas N	Secret	EHS	Class	Mix	Haz	Cat	Waste	days	Cont	Unit	Daily	Waste	Waste	Cont	Press	Temp
6		(components)																		
404	METHANE	Methane		74-82-9	N	N	FG	P	GAS	F		365	1100	CFT	1100	1100		CYL	2	1
405	DIESEL FUEL			000169-00-0	N	N	IRR	P	LIQ	F		365	2500	GAL	2500	2500		UGT	1	1
406	PHOTO FIXER	silver <0.1%		7440-22-4	N	N	TOX	WASTE	LIQ	C	541	365	5	GAL	110	55	2000	CAR	1	1
407		Thiosulfate - 5%		1405-41-0	N	N														
408		acetic acid - 2.5%		64-19-7	N	N														
409	SLUDGES W/ METALS	copper - 0.1%		7440-50-8	N	N	TOX	WASTE	LIQ	C	491	365	30	GAL	120	120	1500	SD	1	1
410		aluminum - 0.0001%		7429-90-5	N	N														
411		nickel - 0.0001%		7440-02-0	N	N														
412		chromium - 0.0001%		7440-47-3	N	N														
413		zinc - 0.1%		7440-66-6	N	N														
414	DIESEL FUEL			000169-00-0	N	N	IRR	P	LIQ	F		365	56	GAL	56	56		AGT	1	1
415	RAGS & CLEANING DEBRIS	lead - 0.001%		7439-92-1	N	N	TOX	WASTE	SOL	C	181	365	55	GAL	400	400	3000	SD	1	1
416	WATER W/HEAVY METALS	chromium - 0.0001%		7440-47-3	N	N	TOX	WASTE	LIQ	C	132	365	55	GAL	110	110	2000	PD	1	1
417		nickel - 0.0001%		7440-02-0	N	N														
418		copper - 0.1%		7440-50-8	N	N														
419	OIL	oil - 100%		000826-00-0	N	N	C	WASTE	LIQ	F	221	365	55	GAL	350	180	3000	SD	1	1
420	MIXED SOLVENTS	acetone - 17-100%		67-64-1	N	N	FL	WASTE	LIQ	F	212	365	5	GAL	310	310	3000	CAN	1	1
421		ethyl acetate - 5%		141-78-6	N	N														
422		MEK - 1%		78-93-3	N	N														
423		methanol - 3-5%		67-56-1	N	N														
424		ethanol 1-50%		64-17-5	N	N														
425	ACIDIC SOLUTIONS	hydrochloric 0.1-2%		7674-01-0	N	N	COR	WASTE	LIQ	A	792	365	5	GAL	110	110	700	GB	1	1
426		nitric 0.1-9%		7697-37-2	N	N														
427		hydrobromic 1-2%		10035-10-6	N	N														
428		phosphoric 0-5%		7664-38-2	N	N														
429		hydrofluoric 0-5%		7664-39-3	N	N														
430	BASIC SOLUTIONS	sodium hydroxide 3-50%		1310-73-2	N	N	COR	WASTE	LIQ	A	112	365	5	GAL	110	110	1000	GB	1	1
431		potassium hydroxide 1-10%		1310-58-3	N	N														
432	WATER W/ORGANICS	chloroform >6ppm		67-66-3	N	N	TOX	WASTE	LIQ	C	551	375	55	GAL	275	275	127*	SD	1	1
433	ORGANICS W/METALS	methanol - 3-5%		67-56-1	N	N	TOX	WASTE	SOL	C	342	365	55	GAL	140	140	100**	PD	1	1
434		barium <1%		7440-39-3	N	N														
435		potassium <1%		9717440	N	N														
436		vanadium <1%		7440-62-2	N	N														
437	WASTE PAINTS	Naphtha 10-25%		n/a	N	N	FL	WASTE	LIQ	F	331	365	1	GAL	30	5	400	CAN	1	1
438		MEK 0-1%		78-93-3	N	N														
439	MIXED Halogenated Solvents	tetrachloroethylene 0-50%		127-18-4	N	N	TOX	WASTE	LIQ	C	551	365	5	GAL	55	20	1000	SD	1	1
440		1,1,1-trichloroethane 0-50%		71-55-6	N	N														
441		chloroform 0-50%		67-66-3	N	N														
442		phenol 0-50%		108-95-2	N	N														
443	PYROPHORIC LIQUIDS	aluminum alkyls 0-10%			N	N	FL	WASTE	LIQ	F	331	365	0.1	GAL	4 LBS	1 LBS	10 LBS		1	1
444		lithium alkyls, 0-10%			N	N														
445		toluene 40-50%			N	N														
446		xylene, 40-50%			N	N														
447	FLAMMABLE METALS	SODIUM 0-10%			N	N	FS	WASTE	SOL	F	155	365	0.25	GAL	20 LBS	2 LBS	50 LBS		1	1
448		LITHIUM 0-10%			N	N														
449		CALCIUM 0-1%			N	N														
450		BARIUM 0-1%			N	N														
451		OIL, 90-100%																		
452																				
453	Building 85A																			
454	OIL	oil - 100%		000826-00-0	N	N	C	WASTE	LIQ	F	221	365	55	GAL	350	180	3000	SD	1	1

E.O. Lawrence Berkeley National Laboratory																			
		B	C	D	E	F	H	I	J	K	L	M	N	O	P	Q	S		
1	E.O. Lawrence Berkeley National Laboratory																		
2																			
3	9	8 & 30	10	11	12	13	14	17	18	19	20	21	22	23	24	25	26	27	28
4	Name	Chemical		Trade	EHS	FC	Pure	State	Fed	State	Waste	Largest	Unit	Max	Ave	Ann			
5	Common	Name	Cas N	Secret	Class	Class	Mix	State	Haz Cat	Code		Cont	Unit	Daily	Daily	Waste	Cont	Press	Temp
6	(components)																		
455	MOBILEFLUID 424		000034-00-0	N	N	IRR	P	LIQ	C	365	365	55	GAL	55	55		PD	1	1
456	FLAMMABLE LIQUIDS	acetone - 17-100%	67-64-1	N	N	FL	WASTE	LIQ	F	551	365	55	GAL	6600	400	1000		1	1
457		ethyl acetate - 5%	141-78-6																
458		MEK - 1%	78-93-3																
459		methanol - 3-5%	67-56-1																
460		ethanol 1-50%	64-17-5																
461		hexane 0-10%																	
462		diesel fuel/gasoline 0-10%																	
463																			
464	Building 86																		
465	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		P	GAS	P	365	365	50	LBS	100	100		CYL	2	1
466																			
467	Building 88																		
468	1, 1, 1-Trichloroethane	1, 1, 1 Trichloroethane	71-55-6	N	N	TOX	P	LIQ	C	365	365	55	GAL	55	55		SD	1	1
469	CARBON DIOXIDE	Carbon Dioxide	124-38-9	N	N		P	GAS	P	365	365	200	CFT	400	400		CYL	2	1
470	HELIUM	Helium	7440-59-7	N	N		P	GAS	P	365	365	344	CFT	1800	1800		CYL	2	1
471	NITROGEN	Nitrogen	7727-37-9	N	N	OHH	P	GAS	P	365	365	200	CFT	1800	1800		CYL	2	1
472	NITROGEN, LIQUID	Liquid Nitrogen	7727-37-9	N	N	CRY	P	LIQ	P	365	365	8000	GAL	8000	8000		AGT	2	4
473	COMPRESSED GAS N.O.S.			N	N		M	GAS	P	365	365	204	CFT	1224	1224		CYL	2	1
474	P-10 GAS	Argon (90%)	7440-37-1	N	N		P	GAS	F	365	365	244	CFT	1708	1708		CYL	2	1
475		Methane (10%)	74-82-8	N	N	FG	P	GAS	F	365	365								
476	VACUUM PUMP OIL		000826-00-0	N	N	IRR	P	LIQ	C	365	365	55	GAL	55	55		SD	1	1

UNIVERSAL WASTE GENERATOR REPORTING FORM

(Please see *Universal Waste Reporting Requirements* sheet for explanation and abbreviations.)

Facility Name and Address: E.O. Lawrence Berkeley National Laboratory (Including our remote site,
Potter St) One Cyclotron Road, Berkeley CA 94720

EPA ID# (required for LQHUWs, and UW Dismantlers and Processors): _____

Reporting Period: Calendar Year 2009 ; January 1 through December 31

All quantities of the following Universal Wastes must be reported:	Pounds per Year
1. Batteries	7877.10 lbs
2. Fluorescent bulbs*	1739.5 lbs
3. Other mercury containing bulbs	
4. Cathode ray tubes (CRTs, televisions and computer monitors that are not flat screened)	42,380 lbs
5. Plasma and LCD televisions	
6. Consumer electronic devices (including cell phones, telephones, pagers and computer equipment)	56,300 lbs
7. Dental amalgam wastes	
8. Nonempty aerosol cans	
9. Mercury thermometers	17.7 lbs
10. Mercury switches (including vehicle switches)	32.2 lbs
11. Mercury thermostats	5.0 lbs
12. Mercury pressure or vacuum gauges	
13. Mercury-added novelties (i.e. lighted shoes)	
14. Mercury counterweights and dampers	
15. Mercury-added dilators and weighted tubing	
16. Mercury-added rubber flooring	
17. Mercury gas-flow regulators	
Annual Throughput-Total Pounds:	108,351.5

* Fluorescent bulb generation may be reported in feet, but please indicate the units used.

Emergency Response Plan/Contingency Plan

Page 1 of 3

The following items are elements of a comprehensive emergency response/contingency plan that meets state requirements. If your facility has a written plan, or if you are to prepare one, make sure all the elements listed are covered by your plan. Small facilities with simple operations may complete the boxes below to be in compliance with the written emergency plan requirement. Please submit a copy of your written response plan or complete and submit this form.

I. Facility Information

Facility Name: E.O. Lawrence Berkeley National Laboratory	Phone: (510) 486-5514
Address: One Cyclotron Road	
City: Berkeley	Zip: 94720

II. Emergency Coordinators

Primary Coordinator	Secondary Coordinator
Name: ALCO Fire Department	Name: Emergency Contact Team
Title: Incident Commander	Title: LBNL 24/7 Emergency Contact Team
Work Phone: 925-447-4257	Work Phone: Non-emergency (510) 486-4050
After hours Phone: 9-911	After hours Phone: Emergency (510) 486-6999
Pager: N/A	Pager: N/A

III. Emergency Telephone Numbers and Arrangements

The emergency coordinator shall immediately notify the following whenever a release, fire, or explosion threatens human health or the environment:

Agency	Phone
Fire Department	911
State Office of Emergency Services (OES)	1-800-852-7550
City of Berkeley Toxics Management Division	(510) 981-7460 or 911
Hospital/Medical Center (if injuries)	Alta Bates Hospital (510) 204-1303
EBMUD Waste Water Treatment Facility (if to sewer)	(510) 287-1651
Hazardous Waste Contractor (if clean up needed)	Veolia Environmental Services (800) 325-2382
Bay Area Air Quality Management District	(800) 334-6367 or (415) 771-6000
Other agencies:	

Arrangements: (Please check one box)

- ☐ We have no formalized written agreements with any emergency response agency or contractor.
- ☒ We have formalized written agreements with LBNL participates in the State Mutual Aid Agreement
Telephone: (510) 486-9911 for emergency response.

IV. Earthquake Response

Identify the areas and/or mechanical equipment or other systems that could require immediate inspection or isolation because of their vulnerability to earthquake related ground motion.

Areas/equipment identified to be inspected immediately after an earthquake:	<u>Areas or equipment generally vulnerable to earthquake-related ground motion include chemical storage areas/cabinets, gas cylinders and dewars, waste collection and storage areas, cold storage and water systems.</u>
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Emergency Response Plan/Contingency Plan

Page 2 of 3

V. Emergency Equipment Inventory Table

EQUIPMENT CATEGORY	Equipment ✓ if these are provided	Location*	Description**
Personal Protective Equipment, Safety Equipment, First Aid Equipment	✓ Chemical Protective Boots	Fire Dept.	
	✓ Chemical Protective Gloves	Locations Throughout the Site	
	✓ Safety Glasses/Goggles/Face shields	Locations Throughout the Site	
	✓ Chemical Protective Clothing	Locations Throughout the Site	
	✓ Hard Hats	Locations Throughout the Site	
	✓ Chemical Monitoring Equipment (describe)	Locations Throughout the Site	
	✓ First Aid Kits	Locations Throughout the Site	
	✓ Eye Wash Stations	Locations Throughout the Site	
	✓ Safety Showers	Locations Throughout the Site	
	✓ Cartridge Respirators and Cartridges (describe)	Locations Throughout the Site	
	✓ Self-Contained Breathing Apparatus (SCBA)	Fire Dept.	
	Other (describe)		
Fire Extinguishing Systems	✓ Fire Extinguishers	Locations Throughout the Site	The Lab's Fire Dept maintains haz mat response.
	✓ Automatic Fire Systems	Locations Throughout the Site	Equipment set forth in Alameda County Haz Mat Plan.
	✓ Fire Alarm Boxes	Locations Throughout the Site	All buildings have extinguishers, detectors, sprinklers.
Spill Control Equipment, Decontamination Equipment	✓ Absorbents, Neutralizers (describe)	Various	Fire Department and Waste Accumulation Areas.
	✓ Shovels/Brooms/Squeegees	Various	"
	✓ Overpack drum/Spill drum	Various	"
	✓ Berms/Dikes (describe)	Various	"
	✓ Decontamination Equipment (describe)	Various	"
	✓ Gas cylinder leak repair kits (describe)	Various	"
	Other (describe)		
Communications and Alarm Systems	✓ Telephones	Locations Throughout the Site	A site-wide communications system is maintained and connected to Fire Dept Dispatch.
	✓ Intercoms/PA systems	Locations Throughout the Site	Maintained and connected to the Fire Department.
	✓ Portable 2 way radios	Bldg Mgr	Members of the Building Emergency Teams.
	UST leak detection monitors		
	Chemical alarms (describe)		
Additional Equipment (Use additional pages if needed)	✓ Emergency Rescue Boxes containing various emergency response equipment.	Locations throughout the site	22 locations on-site + 6 locations off-site.

* If appropriate, use the location code(s) from your Hazardous Materials Business Plan.

** Describe the equipment, such as type and quantity, and its capabilities. If applicable, specify any testing/maintenance procedures/intervals.

Emergency Response Plan/Contingency Plan

Page 3 of 6

VI. Evacuation Information:

Evacuation Announcement	<input checked="" type="checkbox"/> Bell <input checked="" type="checkbox"/> PA System Other <u>Building Emergency Teams</u> <input checked="" type="checkbox"/> Horn <input checked="" type="checkbox"/> Shouting
Evacuation Route	<input checked="" type="checkbox"/> Map Other <u>Site and Building Evacuation Plans</u>
Assembly Area	Location: Per each building plan.
Re-entry Procedures	Guidelines set forth in Master Emergency Program Plan.

VII. Emergency Procedures:

Emergency Coordinator Responsibilities:

1. Whenever there is an imminent or actual emergency situation such as a explosion, fire, or release, the emergency coordinator (*or his/her designee when the emergency coordinator is on call*) shall:
 - a. Identify the character, exact source, amount, and aerial extent of any released hazardous materials.
 - b. Assess possible hazards to human health or the environment that may result from the explosion, fire, or release. This assessment must consider both direct and indirect effects (*e.g. the effects of any toxic, irritating, or asphyxiating gases that are generated, the effects of any hazardous surface water run-off from water or chemical agents used to control fire, etc.*).
 - c. Activate internal facility alarms or communications systems, where applicable, to notify all facility personnel.
 - d. Notify appropriate local authorities (*i.e., call 911*).
 - e. Notify the State Office of Emergency Services at 1-800-852-7550.
 - f. Monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment shut down in response to the incident.
 - g. Take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous materials at the facility.
2. Before facility operations are resumed in areas of the facility affected by the incident, the emergency coordinator shall:
 - a. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from a explosion, fire, or release at the facility.
 - b. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed.
 - c. Ensure that all emergency equipment is cleaned, fit for its intended use, and available for use.
 - d. Notify the Cal/EPA's Department of Toxic Substances Control and the City of Berkeley Toxics Management Division that the facility is in compliance with requirements 2-a and 2-b, above.

Special site specific procedures:

Emergency	Response Action
Hazardous Material & Hazardous Waste Spills/Releases:	Procedures included in the State of California Department of Toxic Substance Control, Part B Permit, and Alameda County Hazardous Materials Plan.
Fire	" " " " "
Explosion	" " " " "
Earthquake	" " " " "
Other	" " " " "

Employee Training Plan

1. Scope

This plan is designed to provide employees with training on hazardous materials and hazardous waste that will satisfy the requirements of the California Health and Safety Code Chapter 6.95 and Chapter 6.5.

Facility Name:	E.O. Lawrence Berkeley National Laboratory
Address:	One Cyclotron Road, Berkeley CA 94720
Main Activity:	Scientific Research
Building or Areas where hazardous materials/wastes are found:	See Appendix B

2. Responsibilities

The following persons are responsible for ensuring that this Training Plan is implemented:

Name/Title	Training Responsibility
Don Lucas	EH&S Division Deputy

3. Employees/New Employees

New employees are trained during orientation, before starting on a job?

☒ YES ☐ NO

New employees who handle hazardous waste are trained in hazardous waste management within six months of hire date?

☒ YES ☐ NO

4. New Assignments or Changes in Operations

In the event of new assignments or of changes in operation, affected employees are trained before the new assignment or the change in operation takes place.

☒ YES ☐ NO

5. Refresher Training

Refresher training will be provided as needed. The method used will be: *(check all that apply)*
how often

- | | |
|---|---|
| <input checked="" type="checkbox"/> Outside classes | <input checked="" type="checkbox"/> In-house classes provided by contractor |
| <input checked="" type="checkbox"/> Safety meetings | <input checked="" type="checkbox"/> In-house classes conducted by in-house trainers |

6. Training Topics

The following table indicates the training topics covered for this facility, as indicated with a ☒. Other documentation on these training topics is maintained and are available to the inspector upon request.

All employees are trained to do the following procedures, as appropriate:	
<input checked="" type="checkbox"/>	1. Initiate, activate, or recognize internal alarms and other emergency announcements.
<input checked="" type="checkbox"/>	2. Notify internal or on-site emergency responders listed in the emergency response/contingency plan.
<input checked="" type="checkbox"/>	3. Notify agencies listed in the emergency/contingency plan.
<input checked="" type="checkbox"/>	4. Locate and review contents of written emergency response/contingency plan.
<input checked="" type="checkbox"/>	5. Initiate, conduct, or follow evacuation procedures as described in the emergency response/contingency plan.
Hazardous materials/waste handlers are additionally trained in the following subjects:	
<input checked="" type="checkbox"/>	1. Safe methods for handling and storage of hazardous materials and hazardous waste.
<input checked="" type="checkbox"/>	2. Locations and proper use of personal protective equipment.
<input checked="" type="checkbox"/>	3. Locations and proper use of fire and spill control equipment.
<input checked="" type="checkbox"/>	4. Specific hazards of each chemical or waste to which they may be exposed, including the pathways of exposure (i.e. skin absorption, inhalation, ingestion).
<input checked="" type="checkbox"/>	5. Follow emergency procedures for chemical/waste spills, earthquake, fire, and/or medical emergencies as described in the emergency response/contingency plan.
<input checked="" type="checkbox"/>	6. Hazardous waste handlers/managers are also trained in all aspects of hazardous waste management specific to their job duties (e.g. accumulation time, storage period, labels, inspection of containers and storage areas, uniform hazardous waste manifests, etc.)

7. Emergency Response Team

This facility has a formally organized Emergency Response Team.

☒ YES ☐ NO

Emergency Response Team members are additionally trained for the following activities:	
<input checked="" type="checkbox"/>	1. Personnel rescue procedures.
<input checked="" type="checkbox"/>	2. Shutdown of operations.
<input checked="" type="checkbox"/>	3. Liaison with emergency response agencies.
<input checked="" type="checkbox"/>	4. Use, maintenance, and replacement of emergency response equipment.
<input checked="" type="checkbox"/>	5. Emergency response drills are conducted, at least (<i>specify frequency</i>) [One] times a year.
<input checked="" type="checkbox"/>	6. Refresher training is provided, at least annually.

8. Recordkeeping

Employee training and other records are to be maintained at the facility. These include the following:

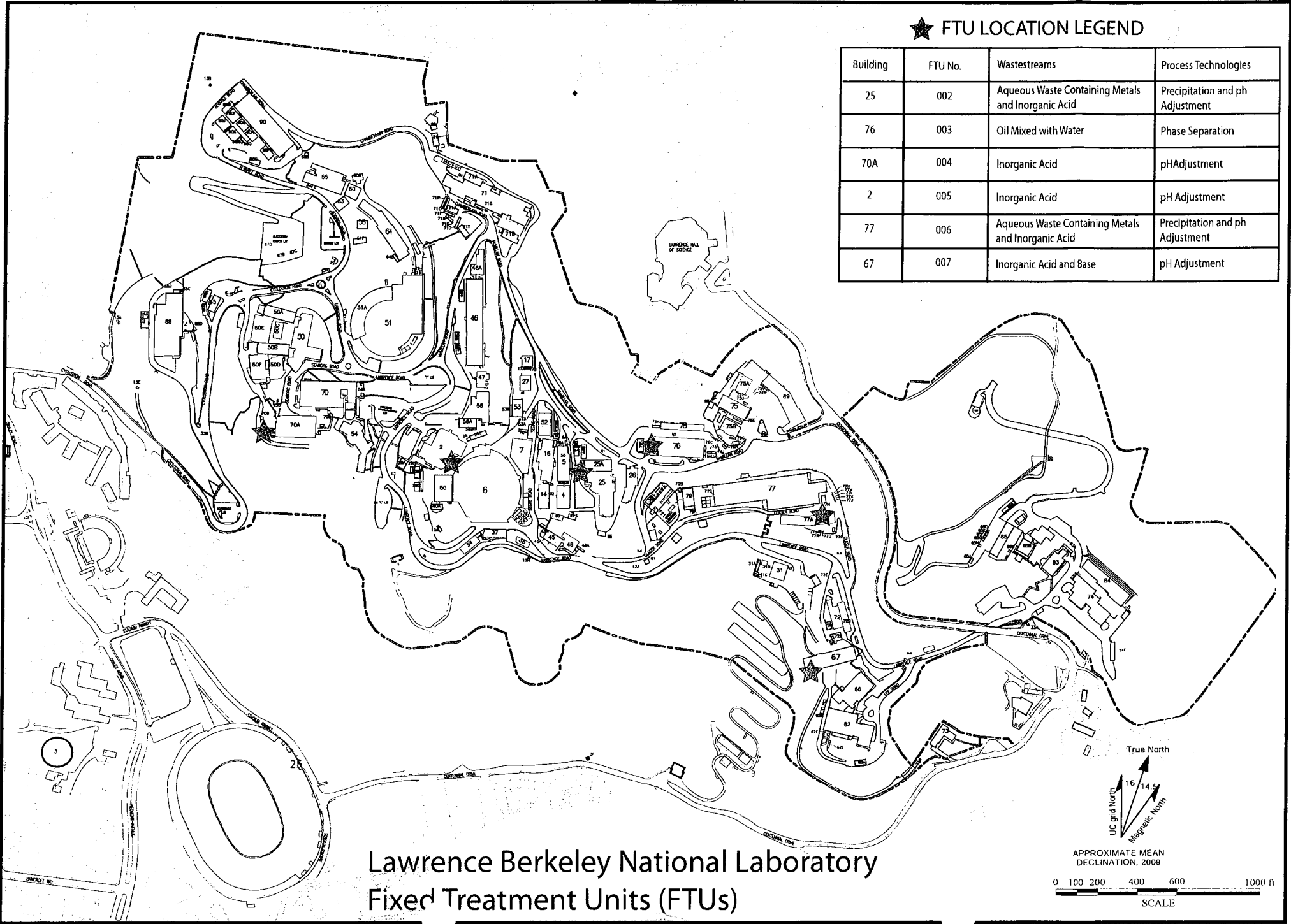
<input checked="" type="checkbox"/>	1. Record of training for each employee (date and duration of training, subject matter covered, instructor, etc.).
<input checked="" type="checkbox"/>	2. Training records of current and former employees. (For current employees, records are to be retained until closure of the facility. For former employees, training records are to be retained for at least 3 years after termination of employment.
<input checked="" type="checkbox"/>	3. Description of introductory and continuing training programs for each employee classification.
<input checked="" type="checkbox"/>	4. Current emergency response, contingency, and/or spill response plan (for underground or aboveground tanks).
<input checked="" type="checkbox"/>	5. Description and documentation of emergency response drills.
<input checked="" type="checkbox"/>	6. Record of reportable/recordable accidental releases of hazardous material/waste.
<input checked="" type="checkbox"/>	7. Record of inspections of hazardous material/waste storage areas.
<input checked="" type="checkbox"/>	8. Record of daily inspection of hazardous waste tanks.
<input checked="" type="checkbox"/>	9. Inspection procedures for identified earthquake-sensitive areas and systems in the facility.

Note: The above list does not necessarily include every type of record required to be maintained by your facility.

Training records are maintained in the following location: Institutional computer database; contact Jack Salazar (486-6571) for more information.

FIXED TREATMENT UNITS

- Permit
- Permit by Rule Annual Report



**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE
ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION – FACILITY PAGE**

Page 1 of 53

I. FACILITY IDENTIFICATION

BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As) 3. Lawrence Berkeley National Laboratory	FACILITY ID#	1. <table border="1" style="width: 100%; height: 20px; border-collapse: collapse;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																				

II. STATUS

NOTIFICATION STATUS 600. <input type="checkbox"/> a. Amended <input type="checkbox"/> b. Initial <input checked="" type="checkbox"/> c. Renewal (PBR Only)	PERMIT STATUS (Check all that apply) 601. <input checked="" type="checkbox"/> a. Facility Permit <input type="checkbox"/> b. Interim Status <input type="checkbox"/> c. Standardized Permit <input type="checkbox"/> d. Variance <input type="checkbox"/> e. Consent Agreement
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III. NUMBER OF UNITS AT FACILITY

(Indicate the number of units you operate in each tier. Attach one unit notification page for each unit except CE-CL.)

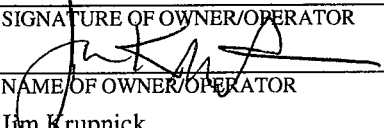
A. _____	Conditionally Exempt – Small Quantity Treatment (CESQT) (May not function under any other tier.)	602.
B. _____	Conditionally Exempt Specified Wastestream (CESW)	
C. 3	Conditionally Authorized (CA)	
D. 3	Permit by Rule (PBR)	
E. _____	Conditionally Exempt – Limited (CEL)	
F. _____	Conditionally Exempt Commercial Laundry (CE-CL) (No unit page is required for laundries.)	
G. 6	TOTAL UNITS (Must equal the number of unit notification pages attached plus the number of CE-CL units.)	

IV. CERTIFICATION AND SIGNATURE

Waste Minimization - I certify that I have a program in place to reduce the volume, quantity and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Tiered Permitting Certification - I certify that the unit or units described in these documents meet the eligibility and operating requirements of state statutes and regulations for the indicated permitting tier, including generator and secondary containment requirements. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are substantial penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE OF OWNER/OPERATOR 	DATE 3/12/10	603.
NAME OF OWNER/OPERATOR Jim Krupnick	TITLE OF OWNER/OPERATOR Associate Laboratory Director for Operations / Chief Operating Officer	605.

REQUEST FOR SHORTENED REVIEW PERIOD (CE and CA only)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
State Reason for Request:	

V. ATTACHMENTS (Check if attached)

ALL tiers except CE-CL (Laundries) must submit: <input checked="" type="checkbox"/> 1. One unit specific notification page and one treatment process page per unit <input checked="" type="checkbox"/> 2. Plot Plan (or other grid/map) 3R & CA ONLY: <input type="checkbox"/> 1. Closure Financial Assurance (formerly DTSC form 1232) <input type="checkbox"/> Self Certified (< \$10,000) <input type="checkbox"/> Other mechanism <input checked="" type="checkbox"/> 2. Prior Enforcement History, if applicable	PBR ONLY <input checked="" type="checkbox"/> 1. Tank and container certifications, if required <input type="checkbox"/> 2. Notification of local agency or agencies <input type="checkbox"/> 3. Notification of property owner, if different from business owner
---	---

**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE**

ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION - UNIT PAGE

(One page and attachments per unit)

Page 3 of 53

FACILITY ID#	<div style="border: 1px solid black; height: 15px; width: 100%;"></div>	1.	BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)	3.
			Lawrence Berkeley National Laboratory	

I. TREATMENT UNIT

UNIT ID# FTU 002	606.	UNIT TYPE/TIER	607.	NUMBER OF TANKS 6	608.	NUMBER OF CONTAINERS/ TREATMENT AREAS 1	609.
UNIT NAME Building 25 Electronic Services FTU	610.	<input type="checkbox"/> a. CESQT <input type="checkbox"/> b. CESW <input type="checkbox"/> c. CA <input checked="" type="checkbox"/> d. PBR <input type="checkbox"/> e. CEL		MONTHLY TREATMENT VOLUME 3300	611.	UNIT OF MEASURE <input type="checkbox"/> a. Pounds <input checked="" type="checkbox"/> b. Gallons	612.

SPECIFIC WASTE TYPE TREATED (narrative) 613.
 Aqueous waste and sludge containing metals listed in 22 CCR 66261.24(a)(2).

TREATMENT PROCESS DESCRIPTION (narrative) 614.
 Metals precipitation, pH adjustment, and sludge dewatering. See attached, "Process Description, Electornic Services Fixed Treatment Unit FTU 002" for a a more detailed description of the treatment process.

(NOTE: For each treatment unit, complete and attach the appropriate Waste and Treatment Process Combinations page.)

II. BASIS FOR NOT NEEDING FEDERAL PERMIT (Check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> a. The treated waste is not a hazardous waste under federal law (California-only waste).
<input checked="" type="checkbox"/> b. Treated in waste water treatment units (tanks) and discharged to a publicly owned treatment works (POTW)/sewering agency or under an NPDES permit.
<input type="checkbox"/> c. Treatment in elementary neutralization units.
<input type="checkbox"/> d. Treatment in a totally enclosed treatment facility.
<input type="checkbox"/> e. Federal conditionally exempt small quantity generator (generated 100 kg., approximately 27 gallons, or less of hazardous waste in a calendar month). | <input type="checkbox"/> f. Treatment in an accumulation tank or container within 90 days for over 1,000 kg./month generators and 180 or 270 days for generators of 100 to 1,000 kg./month. 615.
<input type="checkbox"/> g. Recyclable materials are reclaimed to recover silver or other precious metals.
<input type="checkbox"/> h. Empty container rinsing and/or treatment.
<input type="checkbox"/> i. Other (specify below) |
|--|---|

III. RESIDUALS MANAGEMENT DESCRIPTION (Check all that apply)

- | | |
|--|--|
| <input checked="" type="checkbox"/> a. Discharge non-hazardous aqueous waste to POTW or sewer.
<input type="checkbox"/> b. Discharge non-hazardous aqueous waste under a NPDES permit.
<input type="checkbox"/> c. Dispose of non-hazardous solid waste residues at an offsite location. | Residual hazardous waste hauled offsite by a registered hauler. 616.
<input type="checkbox"/> d. Offsite recycling
<input type="checkbox"/> e. Thermal treatment
<input type="checkbox"/> f. Disposal to land
<input checked="" type="checkbox"/> g. Further treatment
<input type="checkbox"/> h. Other method of disposal (describe below) |
|--|--|

SECONDARY CONTAINMENT INSTALLATION DATE (If required) 1987 617.

Onsite Hazardous Waste Treatment Notification – Unit [(Formerly DTSC Form 1772A,B,C,D,L)]

Complete an Onsite Hazardous Waste Treatment Notification - Unit page and a Waste and Treatment Process Combinations page for each treatment unit operating at this facility. Commercial Laundries are not required to complete unit specific pages, provided that laundering is the only hazardous waste treatment activity conducted by the facility. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

1. FACILITY ID NUMBER - This space is for agency use only.
3. BUSINESS NAME - Enter the complete Facility Name.
606. UNIT ID NUMBER - Enter a unique number for each unit. All unit numbers must be clearly labeled on the plot plan/map.
607. UNIT TYPE / TIER - Check the appropriate box to indicate unit type under the Tiered Permitting program.
608. NUMBER OF TANKS - Enter the number of tanks used in the unit. ["Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.]
609. NUMBER OF CONTAINERS/TREATMENT AREAS - Enter the number of containers/container treatment areas used in the unit. ["Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, disposed of, or recycled.] "Treatment Area" is a location set aside and used to treat waste in containers.
610. UNIT NAME - Enter the name of the treatment unit. A treatment unit is defined as a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system.
611. MONTHLY TREATMENT VOLUME - Enter the estimated monthly total volume of hazardous waste treated in this unit. If the volume fluctuates significantly by month, enter the maximum volume treated in any month.
612. UNIT OF MEASURE - Check a box to indicate whether the treatment volume unit of measure is pounds or gallons.
613. SPECIFIC WASTE TYPE TREATED - Describe the specific waste type(s) treated (e.g. If the waste qualifies as an aqueous waste with metals or organics, indicate the specific metals or organics).
614. TREATMENT PROCESS DESCRIPTION - Describe the treatment process(es) used. Indicate if the activities are seasonal or periodic.
615. BASIS FOR NOT NEEDING FEDERAL PERMIT - Check the reason(s) that best describe why your onsite treatment unit does not need a federal hazardous waste permit. You must indicate at least one reason to prove your eligibility for the onsite treatment tiers. If you are unsure how these exemptions apply to your operation, contact your Certified Unified Program Agency (CUPA), the DTSC Regional Office closest to you, the U.S. EPA Region IX RCRA Information Line at (415) 744-2074, or the U.S. EPA RCRA Hotline at (800) 424-9346. The eight most common reasons for not needing a federal permit are listed on this form. There is also a space to specify any other reason for exemption and a supporting regulatory citation. The following terms are defined in 40 CFR §260.10:
 - Wastewater Treatment Unit** - A device which: (1) is part of a wastewater treatment facility regulated under section 402 or 307(b) of the Clean Water Act, and (2) receives and treats or stores an influent wastewater that is a hazardous waste or that generates and accumulates a wastewater treatment sludge that is a hazardous waste or that treats or stores a wastewater treatment sludge which is a hazardous waste, and (3) meets the definition of tank or tank system.
 - Elementary Neutralization Unit** - A device which (1) is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed only for this reason, and (2) meets the definition of tank, tank system, container, transport vehicle, or vessel.
 - Totally Enclosed Treatment Facility** - A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment.
 - NPDES Permit** - A permit issued by a regional water board allowing discharge of waste to the environment under the National Pollutant Discharge Elimination System (NPDES).
616. RESIDUALS MANAGEMENT DESCRIPTION - Check the appropriate box(es) to describe how treatment residuals are managed. If box h. is checked, describe the "other" methods in the space provided.
617. SECONDARY CONTAINMENT INSTALLATION DATE - Enter the date the secondary containment was installed.

UNIFIED PROGRAM CONSOLIDATED FORM
ONSITE TIERED PERMITTING
PERMIT BY RULE (PBR) PAGE
WASTE AND TREATMENT PROCESS COMBINATIONS

(One page per treatment unit. Check all that apply)

UNIT ID# FTU 002

606.

Facility ID#

1.

Page 4 of 53

1. Aqueous wastes containing hexavalent chromium may be treated by the following process:
Reduction of hexavalent chromium to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfate, ferrous sulfate, ferrous sulfide or sulfur dioxide provided
☐ a. both pH and addition of the reducing agent are automatically controlled.
2. Aqueous wastes containing metals listed in Title 22, CCR, Section 66261.24 (a)(2) and/or fluoride salts may be treated by the following technologies:
☒ a. pH adjustment or neutralization.
☒ b. Precipitation or crystallization.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Ion exchange.
☐ e. Reverse osmosis.
☐ f. Metallic replacement.
☐ g. Plating the metal onto an electrode.
☐ h. Electrodialysis
☐ i. Electrowinning or electrolytic recovery
☐ j. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ k. Evaporation.
☐ l. Adsorption
3. Aqueous wastes with total organic carbon less than 10% as measured by EPA Method 9060 and less than 1% total volatile organic compounds as measured by EPA Method 8240 may be treated by the following technologies:
☐ a. Phase separation by filtration, centrifugation or gravity settling, but excluding super critical fluid extraction.
☐ b. Adsorption.
☐ c. Distillation.
☐ d. Biological processes conducted in tanks or containers and utilizing naturally occurring microorganisms.
☐ e. Photodegradation using ultraviolet light, with or without the addition of hydrogen peroxide or ozone, provided the treatment is conducted in an enclosed system.
☐ f. Air stripping or steam stripping.
4. Sludges, dusts, solid metal objects and metal workings which contain or are contaminated with metals listed in Title 22, CCR, Section 66261.24 (a)(2) and/or fluoride salts may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☒ b. Physical processes which change only the physical properties of the waste such as grinding, shredding, crushing or compacting.
☐ c. Drying to remove water.
☐ d. Separation based on differences in physical properties such as size, magnetism or density.
5. Alum, gypsum, lime, sulfur or phosphate sludges may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
- Wastes identified in Title 22, CCR, Section 66261.120, that meet the criteria and requirements for special waste classification in Section 66261.122 may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Screening to separate components based on size.
☐ e. Separation based on differences in physical properties such as size, magnetism or density.
7. Wastes, except asbestos, which have been classified by the Department as special wastes pursuant to Title 22, CCR, Section 66261.124, may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Magnetic separation.
8. Inorganic acid or alkaline wastes may be treated by the following technology:
☐ a. pH adjustment or neutralization.
9. Soils contaminated with metals listed in Title 22, CCR, Section 66261.24(a)(2), (Persistent and Bioaccumulative Toxic Substances) may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Screening to separate components based on size.
☐ c. Magnetic separation.
10. Used oil, unrefined oil waste, mixed oil, oil mixed with water and oil/water separation sludges may be treated by the following technologies:
☐ a. Phase separation by filtration, centrifugation or gravity settling, but excluding super critical fluid extraction.
☐ b. Distillation.
☐ c. Neutralization.
☐ d. Separation based on differences in physical properties such as size, magnetism or density.
☐ e. Reverse osmosis.
☐ f. Biological processes conducted in tanks or containers and utilizing naturally occurring microorganisms.
11. Containers of 110 gallons or less capacity which are not constructed of wood, paper, cardboard, fabric, or any other similar absorptive material, which have been emptied as specified in Title 40 of the Code of Federal Regulations, section 261.7 or inner liners removed from empty containers that once held hazardous waste or hazardous material and which are not excluded from regulation may be treated by the following technologies provided the treated containers and rinseate are managed in compliance with applicable requirements.
☐ a. Rinsing with a suitable liquid capable of dissolving or removing the hazardous constituents which the container held.
☐ b. Physical processes such as crushing, shredding, grinding or puncturing, that change only the physical properties of the container or inner liner, provided the container or inner liner is first rinsed and the rinseate is removed from the container or inner liner.
12. Multi-component resins may be treated by the following process:
☐ a. Mixing the resin components in accordance with the manufacturer's instructions.

A waste stream technology combination certified by the Department pursuant to Section 25200.1.5 of the Health and Safety Code as appropriate for authorization under Permit by Rule.

☐ Certified Technology Number: _____

Waste and Treatment Process Combinations Form PBR Instructions (Formerly DTSC Form 1772D)

This Waste and Treatment Process Combinations page lists those waste and treatment combinations certified by the Department of Toxic Substances Control (DTSC) pursuant to Health and Safety Code (H&SC) §25200.1.5 for authorization under the Permit by Rule (PBR) tier. (Note: Reactive and extremely hazardous wastes are not allowed to be treated under this tier.)

Complete a separate Waste and Treatment Process Combinations page for each unit. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

606. UNIT ID NUMBER - Enter the unit ID number (same as item 606 from the Onsite Hazardous Waste Treatment Notification - Unit form).

1. FACILITY ID NUMBER - This space is for agency use only.

630. WASTE AND TREATMENT PROCESS COMBINATIONS (PBR) - Use this page only for a PBR unit. Check the appropriate boxes to indicate the waste and treatment process(es) that pertain to the unit. If the process is a technology certified by DTSC, enter the Certified Technology Number (Cert. #). Certified technologies appropriate for authorization, and the eligible tiers, are listed below.

CERTIFIED TECHNOLOGIES

DTSC is authorized to certify hazardous waste technologies. Appropriate certified technologies may be eligible for the CE, CA or PBR onsite treatment tiers. As of April 1, 1999, there is one certified technology for these tiers. The certification is for aldehyde treatment processes and is eligible for the CESW tier. The approved technology is:

Technology	Vendor	Cert. #	Effective Date	Tier	Description
Neutralex	Scigen 333 East Gardena Blvd. Gardena, CA 90248	97-01-0024	629/97 (expires 6/29/00)	CESW	Batch treatment for 10 percent Formalin generated by medical, educational, and laboratory facilities. Chemically treats in a provided 8 liter vessel. After testing, allows for disposal to sanitary sewer.

A copy of published Certification Statements and additional updates may be obtained by contacting DTSC at (916) 322-3670 or from the Cal/EPA on-line Bulletin Board via modem at (916) 322-5041.

PROCESS DESCRIPTION
ELECTRONIC SERVICES FIXED TREATMENT UNIT FTU 002
LBL - BUILDING 25

PhotoFabrication and Silk-Screening facilities, provides a variety of electronic assembly and photo fabrication services for the LBL community. These services include: manufacture of rigid and flexible printed circuit boards, Silk-Screening of equipment panels, and etching.

The printed circuit board, chemical milling(etching) and silk screening process discharges wastewater into the Fixed Treatment Unit FTU 002 located at Building 25. Also, there are two sinks which are connected to FTU 002. A maximum of 2,500 gallons per month of wastewater from these processes are treated in FTU 002.

The chemical rinse water process which discharge directly into FTU 002 include:

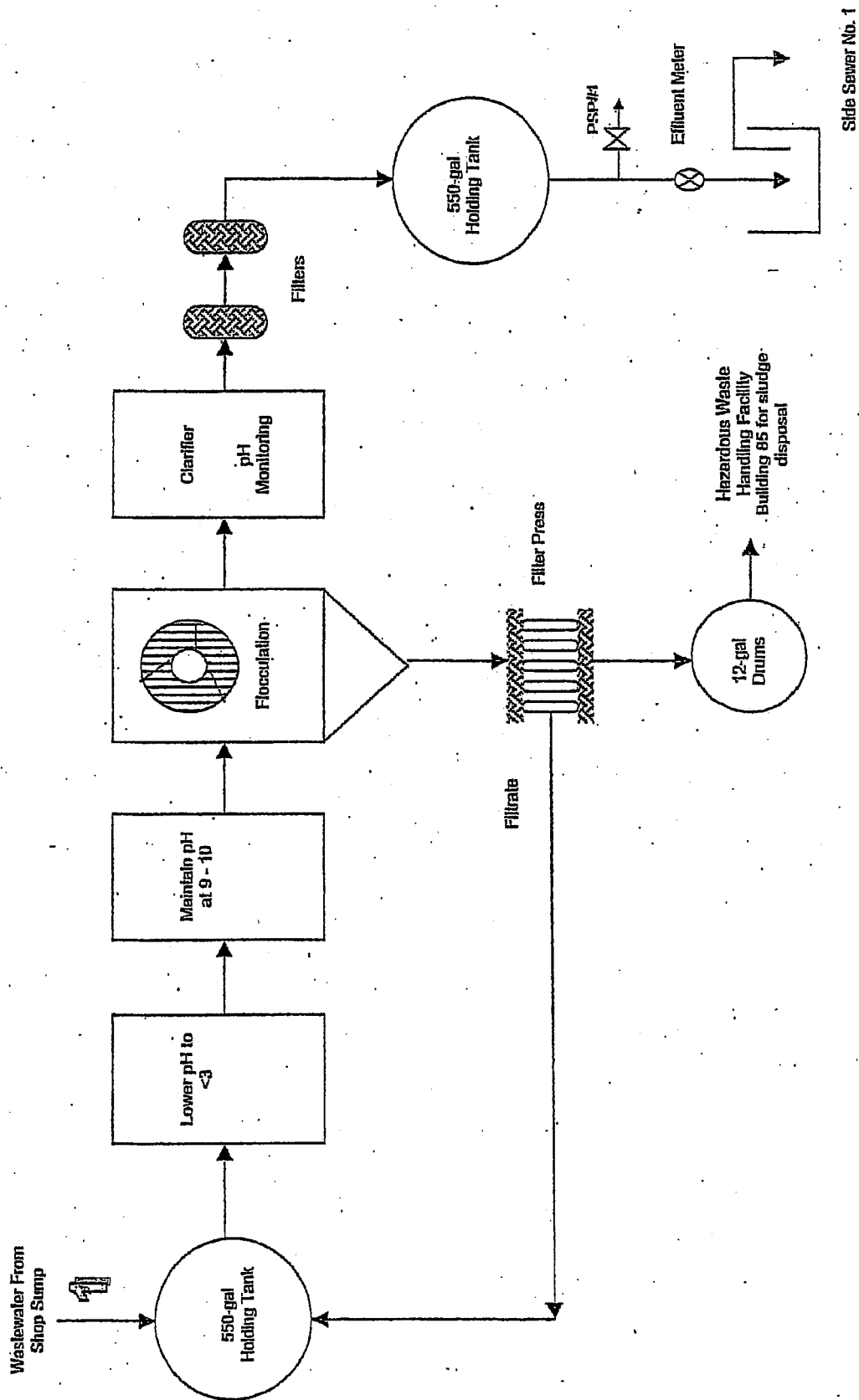
- AFR-2 cleaner, rinse water
- Micro Etch ND, rinse water
- Riston stripper
- Silk Screen cleaning solutions
- Developing Ulano film

The wastewaters from the above process and sinks flow into a sump. From the sump the wastewater is pumped into a 550-gallon holding tank. The 550-gallon holding tank provides equalization and allows the fixed treatment unit (FTU 002) to be operated on a batch basis (as often as twice per month). Sulfuric acid is added to lower the pH to <3. Ferric chloride is added to help precipitate heavy metals and sodium hydroxide are then added to neutralize the wastewater.

A polyelectrolyte coagulant is added to aid in the flocculation of the metal precipitate in the flocculation chamber. The wastewater is then clarified and filtered.

After the treatment process is complete treated rinse water is collected in a 550 gallon holding tank. The treated water in the holding tank is analyzed by a trained personnel. If the results show that the treated water meets in-house standards then the treated water is discharged to the local Publicly Owned Treatment Works (POTW) which is the East Bay Municipal Utility District (EBMUD). If the treated water does not meet in-house standards (approximately one-half of EBMUD's discharge limits) then the water is passed through the treatment process a second time.

This treatment process generates a sludge which contains metals. The sludge is dewatered in a filter press. The filter cake, a residual hazardous waste, typically contains copper, lead, nickel, and zinc. The filter cake is collected in a 12-gallon drum for transportation off-site by a registered hazardous waste hauler.



Building 25 FTU 002 Wastewater Treatment Process



Environmental Solutions through Technology

TRC Environmental Corporation
1201 North McDowell Boulevard
Petaluma, CA 94954
☎ (707) 769-5250 Fax (707) 762-3614

June 29, 1993

University of California
Lawrence Berkeley Laboratory for the U.S. Department of Energy
Environmental Protection Group
Building B75B
Berkeley, California 94720

Attention: Mr. Robert Fox

Tank Certification Report for Building 25 - FTU 002.
EPA ID Number: CA 4890008986

Dear Mr. Fox,

An inspection of the Waste Treatment Tank (Building 25) and associated plumbing and containment structures has been conducted by TRC Environmental Corporation on several occasions between February 25, 1993 and June 29, 1993. The tanks, piping systems, containment systems, pumps, and other control devices were observed.

Based on these inspections, a review of available drawings and design information, and subsequent calculations, the following certification is made. Because the tank was in operation prior to July 14, 1986, this certification is being made pursuant to CCR Section 66265.191, - "Assessment of Existing Tank System's Integrity."

Title 22, Code of California Regulations (CCR):
Section 66264.191(a) Tank System Integrity :

Based upon visual observations of the base metal during coating/preparation operations, observations made during the coating operations, coating thickness tests after application of the new coating, and a static water level test, the treatment tank has sufficient integrity to contain the materials to be treated in the tank.

Section 66265.191(b)(1) Design Standards

Appears to meet regulatory requirements per visual inspection and limited design document review.

University of California
Lawrence Berkeley Laboratory for the U.S. Department of Energy
Mr. Robert Fox
March 26, 1993
Page 2

Section 66265.191(b)(2) Hazardous Characteristics of Waste

The systems is compatible with the intended wastes from the plating and circuit board manufacturing operations in the adjacent building 25. A review of the coating manufacturers specifications indicate that the coating is compatible with the wastes intended for treatment.

Section 66265.191(b)(3) Corrosion Protection

Appears to meet regulatory requirements per visual inspection and limited design document review. Inspections were also performed during tank coating operations. The base metal appeared to have integrity and a review of the manufacturers coating specifications indicate that the coating should provide very good to excellent corrosion protection for the materials to be treated in the tank.

Section 66265.191(b)(4) Age of Tank System

Based upon discussions with laboratory personal and a review of construction documents, the tank was installed during March, 1986.

Section 66265.191(b)(5) Leak Test and Inspection Results

Based upon visual observations of the base metal during coating/preparation operations, observations made during the coating operations, coating thickness tests after application of the new coating, and a static water level test, the treatment tank has sufficient integrity to contain the materials to be treated in the tank. Visual observations included an inspection for the following items:

- (1) weld breaks;
- (2) punctures;
- (3) scrapes of protective coatings;
- (4) cracks;
- (5) corrosion;
- (6) other structural damage or inadequate construction or installation.

During inspections and the static water level test the tank appeared to meet regulatory requirements.

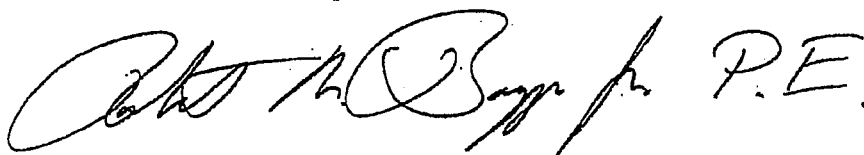
Based on my personal observations and review of supporting materials provided to me by staff at LBL, I attest that the system has sufficient structural integrity, is acceptable for the transferring, storing, and treating of hazardous waste, and that the tanks are suitably designed to achieve the requirements of Article 10, Title 22, CCR.

TRC

University of California
Lawrence Berkeley Laboratory for the U.S. Department of Energy
Mr. Robert Fox
March 26, 1993
Page 3

I certify under penalty of law that this document was prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,
TRC Environmental Corporation

A handwritten signature in black ink, appearing to read "Robert M. Boggs, P.E.", with a stylized flourish at the end.

Robert M. Boggs, P.E.
Senior Chemical Engineer
Registered Professional Engineer
California Certificate No. CH 4625

13821015.001

TRC

**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE
ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION – UNIT PAGE**

(One page and attachments per unit)

Page 10 of 53

FACILITY ID#		1.	BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As)	3.
			Lawrence Berkeley National Laboratory	

I. TREATMENT UNIT

UNIT ID# FTU 003	606.	UNIT TYPE/TIER	607.	NUMBER OF TANKS 5	608.	NUMBER OF CONTAINERS/ TREATMENT AREAS 0	609.
UNIT NAME Building 76	610.	<input type="checkbox"/> a. CESQT <input type="checkbox"/> b. CESW <input checked="" type="checkbox"/> c. CA <input type="checkbox"/> d. PBR <input type="checkbox"/> e. CEL		MONTHLY TREATMENT VOLUME 5,600	611.	UNIT OF MEASURE	612.
						<input type="checkbox"/> a. Pounds <input checked="" type="checkbox"/> b. Gallons	

SPECIFIC WASTE TYPE TREATED (narrative)	613.
Oil mixed with water is generated from washing cars, trucks, and buses.	

TREATMENT PROCESS DESCRIPTION (narrative)	614.
Phase separation by gravity settling.	

(NOTE: For each treatment unit, complete and attach the appropriate Waste and Treatment Process Combinations page.)

II. BASIS FOR NOT NEEDING FEDERAL PERMIT (Check all that apply)

<input checked="" type="checkbox"/> a. The treated waste is not a hazardous waste under federal law (California-only waste). <input checked="" type="checkbox"/> b. Treated in waste water treatment units (tanks) and discharged to a publicly owned treatment works (POTW)/sewerage agency or under an NPDES permit. <input type="checkbox"/> c. Treatment in elementary neutralization units. <input type="checkbox"/> d. Treatment in a totally enclosed treatment facility. <input type="checkbox"/> e. Federal conditionally exempt small quantity generator (generated 100 kg., approximately 27 gallons, or less of hazardous waste in a calendar month).	<input type="checkbox"/> f. Treatment in an accumulation tank or container within 90 days for over 1,000 kg./month generators and 180 or 270 days for generators of 100 to 1,000 kg./month. <input type="checkbox"/> g. Recyclable materials are reclaimed to recover silver or other precious metals. <input type="checkbox"/> h. Empty container rinsing and/or treatment. <input type="checkbox"/> i. Other (specify below)	615.
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III. RESIDUALS MANAGEMENT DESCRIPTION (Check all that apply)

<input checked="" type="checkbox"/> a. Discharge non-hazardous aqueous waste to POTW or sewer. <input type="checkbox"/> b. Discharge non-hazardous aqueous waste under a NPDES permit. <input type="checkbox"/> c. Dispose of non-hazardous solid waste residues at an offsite location.	Residual hazardous waste hauled offsite by a registered hauler. <input type="checkbox"/> d. Offsite recycling <input type="checkbox"/> e. Thermal treatment <input checked="" type="checkbox"/> f. Disposal to land <input checked="" type="checkbox"/> g. Further treatment <input type="checkbox"/> h. Other method of disposal (describe below)	616.
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SECONDARY CONTAINMENT INSTALLATION DATE (If required) 1991	617.
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Onsite Hazardous Waste Treatment Notification – Unit [(Formerly DTSC Form 1772A,B,C,D,L)]

Complete an Onsite Hazardous Waste Treatment Notification - Unit page and a Waste and Treatment Process Combinations page for each treatment unit operating at this facility. Commercial Laundries are not required to complete unit specific pages, provided that laundering is the only hazardous waste treatment activity conducted by the facility. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

1. FACILITY ID NUMBER - This space is for agency use only.
3. BUSINESS NAME - Enter the complete Facility Name.
606. UNIT ID NUMBER - Enter a unique number for each unit. All unit numbers must be clearly labeled on the plot plan/map.
607. UNIT TYPE / TIER - Check the appropriate box to indicate unit type under the Tiered Permitting program.
608. NUMBER OF TANKS - Enter the number of tanks used in the unit. ["Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.]
609. NUMBER OF CONTAINERS/TREATMENT AREAS - Enter the number of containers/container treatment areas used in the unit. ["Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, disposed of, or recycled.] "Treatment Area" is a location set aside and used to treat waste in containers.
610. UNIT NAME - Enter the name of the treatment unit. A treatment unit is defined as a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system.
611. MONTHLY TREATMENT VOLUME - Enter the estimated monthly total volume of hazardous waste treated in this unit. If the volume fluctuates significantly by month, enter the maximum volume treated in any month.
612. UNIT OF MEASURE - Check a box to indicate whether the treatment volume unit of measure is pounds or gallons.
613. SPECIFIC WASTE TYPE TREATED - Describe the specific waste type(s) treated (e.g. If the waste qualifies as an aqueous waste with metals or organics, indicate the specific metals or organics).
614. TREATMENT PROCESS DESCRIPTION - Describe the treatment process(es) used. Indicate if the activities are seasonal or periodic.
615. BASIS FOR NOT NEEDING FEDERAL PERMIT - Check the reason(s) that best describe why your onsite treatment unit does not need a federal hazardous waste permit. You must indicate at least one reason to prove your eligibility for the onsite treatment tiers. If you are unsure how these exemptions apply to your operation, contact your Certified Unified Program Agency (CUPA), the DTSC Regional Office closest to you, the U.S. EPA Region IX RCRA Information Line at (415) 744-2074, or the U.S. EPA RCRA Hotline at (800) 424-9346. The eight most common reasons for not needing a federal permit are listed on this form. There is also a space to specify any other reason for exemption and a supporting regulatory citation. The following terms are defined in 40 CFR §260.10:
 - Wastewater Treatment Unit** - A device which: (1) is part of a wastewater treatment facility regulated under section 402 or 307(b) of the Clean Water Act, and (2) receives and treats or stores an influent wastewater that is a hazardous waste or that generates and accumulates a wastewater treatment sludge that is a hazardous waste or that treats or stores a wastewater treatment sludge which is a hazardous waste, and (3) meets the definition of tank or tank system.
 - Elementary Neutralization Unit** - A device which (1) is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed only for this reason, and (2) meets the definition of tank, tank system, container, transport vehicle, or vessel.
 - Totally Enclosed Treatment Facility** - A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment.
 - NPDES Permit** - A permit issued by a regional water board allowing discharge of waste to the environment under the National Pollutant Discharge Elimination System (NPDES).
616. RESIDUALS MANAGEMENT DESCRIPTION - Check the appropriate box(es) to describe how treatment residuals are managed. If box h. is checked, describe the "other" methods in the space provided.
617. SECONDARY CONTAINMENT INSTALLATION DATE - Enter the date the secondary containment was installed.

UNIFIED PROGRAM CONSOLIDATED FORM
ONSITE TIERED PERMITTING
CONDITIONALLY AUTHORIZED (CA) PAGE
WASTE AND TREATMENT PROCESS COMBINATIONS

(One page per treatment unit. Check all that apply)

UNIT ID# FTU 003	606. Facility ID#	Page 11 of 53
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- 629.
1. Aqueous wastes, hazardous solely due to inorganic constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 1,400 ppm total of these constituents. (There is no volume limit for this wastestream.) Treatment using:
☐ a. Phase separation, including precipitation, by filtration, centrifugation, or gravity settling, including the use of demulsifiers and flocculants.
☐ b. Ion exchange, including metallic replacement.
☐ c. Reverse osmosis.
☐ d. Adsorption.
☐ e. pH adjustment of aqueous waste with a pH of between 2.0 and 12.5.
☐ f. Electrowinning of solutions, unless those solutions contain hydrochloric acid.
☐ g. Reduction of solutions hazardous solely due to hexavalent chromium, to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfate, ferrous chloride, ferrous sulfate, ferrous sulfide, or sulfur dioxide. The solution contains less than 750 ppm of hexavalent chromium.

 2. Aqueous wastes, hazardous solely due to organic constituents listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (2)(B) and which contain less than 750 ppm total of these constituents. (There is no volume limit for this wastestream.) Treatment using:
☐ a. Phase separation by filtration, centrifugation, or gravity settling, but excluding super critical fluid extraction.
☐ b. Adsorption.

 3. Sludges resulting from wastewater treatment, dusts, solid metal objects, and metal workings which are hazardous solely due to the presence of constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which, for dusts only, contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Physical processes which constitute treatment only because they change the physical properties of the waste, such as filtration, centrifugation, gravity settling, grinding, shredding, crushing, or compacting.
☐ b. Drying to remove water.
☐ c. Separation based on differences in physical properties, such as size, magnetism, or density.

 4. Alum, gypsum, lime, sulfur, or phosphate sludges. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Drying to remove water. ☐ b. Phase separation by filtration, centrifugation, or gravity settling.

 5. Special wastes listed in Title 22, CCR, Section 66261.120 that meet the criteria in Title 22, CCR, Section 66261.122 which is hazardous solely due to the constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Drying to remove water.
☐ b. Phase separation by filtration, centrifugation, or gravity settling.
☐ c. Screening to separate components based on size.
☐ d. Separation based on differences in physical properties, such as size, magnetism, or density.

 6. Special wastes classified under Title 22, CCR, Section 66261.124 as special wastes, except asbestos, which is hazardous solely due to the constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Drying to remove water. ☐ c. Magnetic separation.
☐ b. Phase separation by filtration, centrifugation, or gravity settling.

 7. Soils contaminated with metals listed in Title 22, CCR, Section 66261.24(a)(2)(A). The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Screening to separate components based on size. ☐ b. Magnetic separation.

 8. Oil mixed with water and oil/water separation sludges. (There is no volume limit for this wastestream.) Treatment using: (NOTE: Some used oil/water separation is allowed under the CEL category.)
☒ a. Phase separation by filtration, centrifugation, or gravity settling, but excluding super critical fluid extraction, including the use of demulsifiers and flocculants. Heat can be used, but must not exceed 160 degrees Fahrenheit.
☐ b. Separation based on differences in physical properties, such as size, magnetism, or density.
☐ c. Reverse osmosis.

 9. Neutralization of acidic or alkaline wastes, hazardous solely due to corrosivity, or toxic only from the acid or caustic material, in elementary neutralization units. (There is no volume limit for this wastestream.)
☐ a. The waste contains less than 10 percent acid or base constituents by weight. There is no volume limit for this category.
☐ b. The waste contains 10 percent or more acid or base constituents by weight and is treated in batches that do not exceed 500 gallons at one time.

 10. Not in use/exempted — formerly recovery of silver from photofinishing.

 11. Not in use/sunsetted — formerly treatment of spent cleaners and conditioners which are hazardous solely due to copper or copper compounds. Treatment of this wastestream is no longer allowed under Conditional Authorization as of January 1, 1998. Treatment of this wastestream now requires authorization under either Permit by Rule or, if the total volume treated is less than 55 gallons per month, under Conditionally Exempt Small Quantity Treatment.

A waste stream technology combination certified by the Department pursuant to Section 25200.1.5 of the Health and Safety Code as appropriate for authorization under Conditional Authorization.

☐ Certified Technology Number: _____

Waste and Treatment Process Combinations Form CA Instructions (Formerly DTSC Form 1772C)

This Waste and Treatment Process Combinations page lists those waste and treatment combinations certified by the Department of Toxic Substances Control (DTSC) pursuant to Health and Safety Code (H&SC) §25200.1.5 for authorization under the Conditionally Authorized (CA) tier. [Note: 1.) Reactive and extremely hazardous wastes are not allowed to be treated under this tier; 2.) Except for dilute aqueous waste and oily waste, volume of hazardous waste treated must not exceed 5,000 gallons (45,000 pounds) per month.]

Complete a separate Waste and Treatment Process Combinations page for each unit. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

606. UNIT ID NUMBER - Enter the unit ID number (same as item 606 from the Onsite Hazardous Waste Treatment Notification - Unit form).

1. FACILITY ID NUMBER - This space is for agency use only.

629. WASTE AND TREATMENT PROCESS COMBINATIONS (CA) -

Use this page only for a CA unit. Check the appropriate boxes to indicate the waste and treatment process(es) that pertain to the unit. If the process is a technology certified by DTSC, enter the Certified Technology Number (Cert. #). Certified technologies appropriate for authorization, and the eligible tiers, are listed below.

CERTIFIED TECHNOLOGIES

DTSC is authorized to certify hazardous waste technologies. Appropriate certified technologies may be eligible for the CE, CA or PBR onsite treatment tiers. As of April 1, 1999, there is one certified technology for these tiers. The certification is for aldehyde treatment processes and is eligible for the CESW tier. The approved technology is:

Technology	Vendor	Cert. #	Effective Date	Tier	Description
Neutralex	Scigen 333 East Gardena Blvd. Gardena, CA 90248	97-01-0024	629/97 (expires 6/29/00)	CESW	Batch treatment for 10 percent Formalin generated by medical, educational, and laboratory facilities. Chemically treats in a provided 8 liter vessel. After testing, allows for disposal to sanitary sewer.

A copy of published Certification Statements and additional updates may be obtained by contacting DTSC at (916) 322-3670 or from the Cal/EPA on-line Bulletin Board via modem at (916) 322-5041.

**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE
ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION – UNIT PAGE**

(One page and attachments per unit)

Page 12 of 53

FACILITY ID#		1.	BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As)	3.
			Lawrence Berkeley National Laboratory	

I. TREATMENT UNIT

UNIT ID# FTU 004	606.	UNIT TYPE/TIER <input type="checkbox"/> a. CESQT <input type="checkbox"/> b. CESW <input checked="" type="checkbox"/> c. CA <input type="checkbox"/> d. PBR <input type="checkbox"/> e. CEL	607.	NUMBER OF TANKS 6	608.	NUMBER OF CONTAINERS/ TREATMENT AREAS 0	609.
UNIT NAME Building 70A and 70F FTU	610.			MONTHLY TREATMENT VOLUME 160,000	611.	UNIT OF MEASURE <input type="checkbox"/> a. Pounds <input checked="" type="checkbox"/> b. Gallons	612.

SPECIFIC WASTE TYPE TREATED (narrative) 613.
Acidic wastes are generated in various laboratories in Building 70A. Acids that are discharged include: hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, nitric acid, and other acids. A complete listing is found in the attachment, "Waste Stream Survey, Building 70A Waste Treatment System."

TREATMENT PROCESS DESCRIPTION (narrative) 614.
Neutralization of acidic wastes by elementary neutralization with sodium hydroxide.

(NOTE: For each treatment unit, complete and attach the appropriate Waste and Treatment Process Combinations page.)

II. BASIS FOR NOT NEEDING FEDERAL PERMIT (Check all that apply)

<input type="checkbox"/> a. The treated waste is not a hazardous waste under federal law (California-only waste). <input checked="" type="checkbox"/> b. Treated in waste water treatment units (tanks) and discharged to a publicly owned treatment works (POTW)/sewerage agency or under an NPDES permit. <input checked="" type="checkbox"/> c. Treatment in elementary neutralization units. <input type="checkbox"/> d. Treatment in a totally enclosed treatment facility. <input type="checkbox"/> e. Federal conditionally exempt small quantity generator (generated 100 kg., approximately 27 gallons, or less of hazardous waste in a calendar month).	<input type="checkbox"/> f. Treatment in an accumulation tank or container within 90 days for over 1,000 kg./month generators and 180 or 270 days for generators of 100 to 1,000 kg./month. 615. <input type="checkbox"/> g. Recyclable materials are reclaimed to recover silver or other precious metals. <input type="checkbox"/> h. Empty container rinsing and/or treatment. <input type="checkbox"/> i. Other (specify below)
---	---

III. RESIDUALS MANAGEMENT DESCRIPTION (Check all that apply)

<input checked="" type="checkbox"/> a. Discharge non-hazardous aqueous waste to POTW or sewer. <input type="checkbox"/> b. Discharge non-hazardous aqueous waste under a NPDES permit. <input type="checkbox"/> c. Dispose of non-hazardous solid waste residues at an offsite location.	Residual hazardous waste hauled offsite by a registered hauler. 616. <input type="checkbox"/> d. Offsite recycling <input type="checkbox"/> e. Thermal treatment <input type="checkbox"/> f. Disposal to land <input type="checkbox"/> g. Further treatment <input type="checkbox"/> h. Other method of disposal (describe below)
--	---

SECONDARY CONTAINMENT INSTALLATION DATE (If required) 1992 617.

Onsite Hazardous Waste Treatment Notification – Unit [(Formerly DTSC Form 1772A,B,C,D,L)]

Complete an Onsite Hazardous Waste Treatment Notification - Unit page and a Waste and Treatment Process Combinations page for each treatment unit operating at this facility. Commercial Laundries are not required to complete unit specific pages, provided that laundering is the only hazardous waste treatment activity conducted by the facility. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

1. FACILITY ID NUMBER - This space is for agency use only.
3. BUSINESS NAME - Enter the complete Facility Name.
606. UNIT ID NUMBER - Enter a unique number for each unit. All unit numbers must be clearly labeled on the plot plan/map.
607. UNIT TYPE / TIER - Check the appropriate box to indicate unit type under the Tiered Permitting program.
608. NUMBER OF TANKS - Enter the number of tanks used in the unit. ["Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.]
609. NUMBER OF CONTAINERS/TREATMENT AREAS - Enter the number of containers/container treatment areas used in the unit. ["Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, disposed of, or recycled.] "Treatment Area" is a location set aside and used to treat waste in containers.
610. UNIT NAME - Enter the name of the treatment unit. A treatment unit is defined as a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system.
611. MONTHLY TREATMENT VOLUME - Enter the estimated monthly total volume of hazardous waste treated in this unit. If the volume fluctuates significantly by month, enter the maximum volume treated in any month.
612. UNIT OF MEASURE - Check a box to indicate whether the treatment volume unit of measure is pounds or gallons.
613. SPECIFIC WASTE TYPE TREATED - Describe the specific waste type(s) treated (e.g. If the waste qualifies as an aqueous waste with metals or organics, indicate the specific metals or organics).
614. TREATMENT PROCESS DESCRIPTION - Describe the treatment process(es) used. Indicate if the activities are seasonal or periodic.
615. BASIS FOR NOT NEEDING FEDERAL PERMIT - Check the reason(s) that best describe why your onsite treatment unit does not need a federal hazardous waste permit. You must indicate at least one reason to prove your eligibility for the onsite treatment tiers. If you are unsure how these exemptions apply to your operation, contact your Certified Unified Program Agency (CUPA), the DTSC Regional Office closest to you, the U.S. EPA Region IX RCRA Information Line at (415) 744-2074, or the U.S. EPA RCRA Hotline at (800) 424-9346. The eight most common reasons for not needing a federal permit are listed on this form. There is also a space to specify any other reason for exemption and a supporting regulatory citation. The following terms are defined in 40 CFR §260.10:
 - Wastewater Treatment Unit** - A device which: (1) is part of a wastewater treatment facility regulated under section 402 or 307(b) of the Clean Water Act, and (2) receives and treats or stores an influent wastewater that is a hazardous waste or that generates and accumulates a wastewater treatment sludge that is a hazardous waste or that treats or stores a wastewater treatment sludge which is a hazardous waste, and (3) meets the definition of tank or tank system.
 - Elementary Neutralization Unit** - A device which (1) is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed only for this reason, and (2) meets the definition of tank, tank system, container, transport vehicle, or vessel.
 - Totally Enclosed Treatment Facility** - A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment.
 - NPDES Permit** - A permit issued by a regional water board allowing discharge of waste to the environment under the National Pollutant Discharge Elimination System (NPDES).
616. RESIDUALS MANAGEMENT DESCRIPTION - Check the appropriate box(es) to describe how treatment residuals are managed. If box h. is checked, describe the "other" methods in the space provided.
617. SECONDARY CONTAINMENT INSTALLATION DATE - Enter the date the secondary containment was installed.

UNIFIED PROGRAM CONSOLIDATED FORM
ONSITE TIERED PERMITTING
CONDITIONALLY AUTHORIZED (CA) PAGE
WASTE AND TREATMENT PROCESS COMBINATIONS

(One page per treatment unit. Check all that apply)

UNIT ID# FTU 004	Facility ID#	Page 13 of 53
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606. 1. Aqueous wastes, hazardous solely due to inorganic constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 1,400 ppm total of these constituents. (There is no volume limit for this wastestream.) Treatment using: 629.
- ☐ a. Phase separation, including precipitation, by filtration, centrifugation, or gravity settling, including the use of demulsifiers and flocculants.
 - ☐ b. Ion exchange, including metallic replacement.
 - ☐ c. Reverse osmosis.
 - ☐ d. Adsorption.
 - ☐ e. pH adjustment of aqueous waste with a pH of between 2.0 and 12.5.
 - ☐ f. Electrowinning of solutions, unless those solutions contain hydrochloric acid.
 - ☐ g. Reduction of solutions hazardous solely due to hexavalent chromium, to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfate, ferrous chloride, ferrous sulfate, ferrous sulfide, or sulfur dioxide. The solution contains less than 750 ppm of hexavalent chromium.
2. Aqueous wastes, hazardous solely due to organic constituents listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (2)(B) and which contain less than 750 ppm total of these constituents. (There is no volume limit for this wastestream.) Treatment using:
- ☐ a. Phase separation by filtration, centrifugation, or gravity settling, but excluding super critical fluid extraction.
 - ☐ b. Adsorption.
3. Sludges resulting from wastewater treatment, dusts, solid metal objects, and metal workings which are hazardous solely due to the presence of constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which, for dusts only, contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
- ☐ a. Physical processes which constitute treatment only because they change the physical properties of the waste, such as filtration, centrifugation, gravity settling, grinding, shredding, crushing, or compacting.
 - ☐ b. Drying to remove water.
 - ☐ c. Separation based on differences in physical properties, such as size, magnetism, or density.
4. Alum, gypsum, lime, sulfur, or phosphate sludges. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
- ☐ a. Drying to remove water.
 - ☐ b. Phase separation by filtration, centrifugation, or gravity settling.
5. Special wastes listed in Title 22, CCR, Section 66261.120 that meet the criteria in Title 22, CCR, Section 66261.122 which is hazardous solely due to the constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
- ☐ a. Drying to remove water.
 - ☐ b. Phase separation by filtration, centrifugation, or gravity settling.
 - ☐ c. Screening to separate components based on size.
 - ☐ d. Separation based on differences in physical properties, such as size, magnetism, or density.
6. Special wastes classified under Title 22, CCR, Section 66261.124 as special wastes, except asbestos, which is hazardous solely due to the constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
- ☐ a. Drying to remove water.
 - ☐ b. Phase separation by filtration, centrifugation, or gravity settling.
 - ☐ c. Magnetic separation.
7. Soils contaminated with metals listed in Title 22, CCR, Section 66261.24(a)(2)(A). The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
- ☐ a. Screening to separate components based on size.
 - ☐ b. Magnetic separation.
8. Oil mixed with water and oil/water separation sludges. (There is no volume limit for this wastestream.) Treatment using: (NOTE: Some used oil/water separation is allowed under the CEL category.)
- ☐ a. Phase separation by filtration, centrifugation, or gravity settling, but excluding super critical fluid extraction, including the use of demulsifiers and flocculants. Heat can be used, but must not exceed 160 degrees Fahrenheit.
 - ☐ b. Separation based on differences in physical properties, such as size, magnetism, or density.
 - ☐ c. Reverse osmosis.
9. Neutralization of acidic or alkaline wastes, hazardous solely due to corrosivity, or toxic only from the acid or caustic material, in elementary neutralization units. (There is no volume limit for this wastestream.)
- ☐ a. The waste contains less than 10 percent acid or base constituents by weight. There is no volume limit for this category.
 - ☒ b. The waste contains 10 percent or more acid or base constituents by weight and is treated in batches that do not exceed 500 gallons at one time.
10. Not in use/exempted — formerly recovery of silver from photofinishing.
11. Not in use/sunsetted — formerly treatment of spent cleaners and conditioners which are hazardous solely due to copper or copper compounds. Treatment of this wastestream is no longer allowed under Conditional Authorization as of January 1, 1998. Treatment of this wastestream now requires authorization under either Permit by Rule or, if the total volume treated is less than 55 gallons per month, under Conditionally Exempt Small Quantity Treatment.

A waste stream technology combination certified by the Department pursuant to Section 25200.1.5 of the Health and Safety Code as appropriate for authorization under Conditional Authorization.

☐ Certified Technology Number: _____

Waste and Treatment Process Combinations Form CA Instructions (Formerly DTSC Form 1772C)

This Waste and Treatment Process Combinations page lists those waste and treatment combinations certified by the Department of Toxic Substances Control (DTSC) pursuant to Health and Safety Code (H&SC) §25200.1.5 for authorization under the Conditionally Authorized (CA) tier. [Note: 1.) Reactive and extremely hazardous wastes are not allowed to be treated under this tier; 2.) Except for dilute aqueous waste and oily waste, volume of hazardous waste treated must not exceed 5,000 gallons (45,000 pounds) per month.]

Complete a separate Waste and Treatment Process Combinations page for each unit. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

606. UNIT ID NUMBER - Enter the unit ID number (same as item 606 from the Onsite Hazardous Waste Treatment Notification - Unit form).

1. FACILITY ID NUMBER - This space is for agency use only.

629. WASTE AND TREATMENT PROCESS COMBINATIONS (CA) -

Use this page only for a CA unit. Check the appropriate boxes to indicate the waste and treatment process(es) that pertain to the unit. If the process is a technology certified by DTSC, enter the Certified Technology Number (Cert. #). Certified technologies appropriate for authorization, and the eligible tiers, are listed below.

CERTIFIED TECHNOLOGIES

DTSC is authorized to certify hazardous waste technologies. Appropriate certified technologies may be eligible for the CE, CA or PBR onsite treatment tiers. As of April 1, 1999, there is one certified technology for these tiers. The certification is for aldehyde treatment processes and is eligible for the CESW tier. The approved technology is:

Technology	Vendor	Cert. #	Effective Date	Tier	Description
NeutraleX	Scigen 333 East Gardena Blvd. Gardena, CA 90248	97-01-0024	6/29/97 (expires 6/29/00)	CESW	Batch treatment for 10 percent Formalin generated by medical, educational, and laboratory facilities. Chemically treats in a provided 8 liter vessel. After testing, allows for disposal to sanitary sewer.

A copy of published Certification Statements and additional updates may be obtained by contacting DTSC at (916) 322-3670 or from the Cal/EPA on-line Bulletin Board via modem at (916) 322-5041.

**WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM**

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
3347 3347A	Etching and processing of semiconductor materials and devices. (Ref. Paul Luke 1/30/09 & 3/13/09 e-mails)	HF, HNO ₃ , HCl, H ₂ SO ₄ , H ₃ PO ₄ , acetic acid, H ₂ O ₂ , NH ₄ F, NH ₄ OH, Br, methanol, isopropanol, TCE, TCA	HF, HNO ₃ , HCl, H ₂ SO ₄ , H ₃ PO ₄ , acetic acid, H ₂ O ₂ , NH ₄ F	HF: 10% HNO ₃ : 70% HCl: 10% H ₂ SO ₄ : 80% H ₃ PO ₄ : 80% acetic acid: 30% H ₂ O ₂ : 6% NH ₄ F: 30%	Generally 100 ml to 500 ml	2 discharges per week averaged over the year	Batch

WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
4405	Leaching Filter material to remove trace metals.	HCl	HCl,	HCl: 1 N	12 liters	6 discharges/week for 2 weeks once or twice per year	Batch
	Cleaning plastic/glassware for trace metal work	HCl, HNO ₃	HCl, HNO ₃	HCl 10% HNO ₃ 10%	5 liters	2 discharges/week	Batch
	Leaches of ocean particles	HCl	HCl	HCl < 1%	< 1 liters	1 discharge/month	Batch
	Waste collection from trace metal analysis of ocean particles leaches.	HCL HNO ₃	HCL HNO ₃	HCL: 1-2% HNO ₃ : 1-2%	5-10 liters	1 discharge/month	Batch

Reference: 4/9/09 e-mail from Todd Wood.

**WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM**

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
4413	1. Phosphoric acid (H_3PO_4) is added to groundwater samples to lower the pH and convert all dissolved inorganic carbon compounds in the sample to carbon dioxide which is analyzed on the mass spectrometer.	1. H_3PO_4	1. H_3PO_4	1. H_3PO_4 : < 0.4%	1. 4 liters	1. 1 discharge/week	1. Batch
		2A. H_3PO_4	2A. H_3PO_4	2A. H_3PO_4 : 2%	2A. 0.5 liters	2A. 4 discharges/year	2A. Batch
		2B. H_3PO_4	2B. H_3PO_4	2B. H_3PO_4 : 5%	2B. 1 liter	2B. 4 discharges/year	2B. Batch

Reference: Mark Conrad 11/20/06 e-mail and 4/14/09 confirmation e-mail.

**WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM**

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
4419 Noble Gas Mass Spec Lab	Acids used for digestion of natural silicate minerals	H ₃ PO ₄ , HNO ₃ , H ₂ O ₂	H ₃ PO ₄ , HNO ₃ , H ₂ O ₂	H ₃ PO ₄ < 7M, HNO ₃ < 8 M, H ₂ O ₂ < 30%	H ₃ PO ₄ < 200ml, HNO ₃ < 200ml; H ₂ O ₂ < 200ml	No more than 2 discharges of each/week – 2-3 months/yr	All batch

Reference: Mack Kennedy's 4/14/09 e-mail.

**WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM**

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
4429A Mass Spec room	Isotopic analyses by MC-ICPMS of samples in dilute (0.33M) HNO ₃ solution. Sometimes dilute HCL or dilute (<0.5%) HF or trace H ₂ O ₂ is used.	HNO ₃ , HCl, HF, H ₂ O ₂	HNO ₃ , HCl, HF, H ₂ O ₂	HNO ₃ <9% HCl <2% HF <0.5% H ₂ O ₂ <10%	HNO ₃ < 500ml HCL <500 ml, HF <10ml, H ₂ O ₂ <10ml	no more than 5 discharges/week	All batch

Reference: John Christensen's 4/13/09 e-mail.

**WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM**

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
4429C Clean Lab	Perchloric acid is used along with HF and HNO ₃ (or HCl) in the dissolution of silicate (e.g. minerals or whole rock) samples. After dissolution is complete, the sample solutions are dried down in the perchloric wash-down fume hood to drive off the acids. The perchloric washdown hood in 4429 is equipped with a wash down system. Once every month the wash down system is used to rinse out the hood exhaust of any perchloric residue. Only perchloric acid will be in the wash. In addition, if the sink is connected to the FTU, about once or twice a month, at most 3 or 4 liters of 50% HNO ₃ or 50% HCl would be discharged to that drain. This acid is mainly from cleaning labware (this is already discharged to the other FTU in 4429 that is outside the clean lab near the mass spectrometer).	HClO ₄ HF HNO ₃ HCl	HClO ₄ - Trace HF HNO ₃ HCl	HClO ₄ : < 1% HNO ₃ : 35% HCl: 18% HF: <2%	Perchloric - wash down system is run for 5 minutes, discharging about 25 liters. HNO ₃ - 4 liters HCl - 4 liters HF <20ml	Perchloric - once/month HNO ₃ & HCl - twice/month HF once/month	Batch in all cases

Reference: John Christensen's 4/13/09 e-mail.

**WASTE STREAM SURVEY
BUILDING 70A WASTE TREATMENT SYSTEM**

Room	Description of process	Chemicals used in process	Chemicals in waste discharge	Concentration of chemicals in discharge (max.)	Volume of discharge	Frequency of discharge	Continuous or batch
4445	Etching and cleaning of Silicon and germanium wafers; oxidation of wafers in a high-temperature furnace.	HF, H ₂ O ₂ , NH ₄ F, H ₂ SO ₄ , HCl, HNO ₃ , H ₃ PO ₄ , CH ₃ COOH, HBF ₄	HF, H ₂ O ₂ , NH ₄ F, H ₂ SO ₄ , HCl, HNO ₃ , H ₃ PO ₄ , CH ₃ COOH, HBF ₄	HF: 7% H ₂ O ₂ : 1% H ₂ SO ₄ : 80% NH ₄ F: 34% HCl: 2% HNO ₃ : 36% H ₃ PO ₄ : 70% CH ₃ COOH: 10% HBF ₄ : 3%	Normal Processing: small amounts of acids. Batch Replenishing: 1 to 5 gallons of various mixtures Leakage in lines: 1400 gallons per day of ultra pure water	Normal Processing: maximum of twice a day at some work stations. Batch Replenishing: once a week at most for most baths	Batch for normal processing and batch replenishing Leakage in lines is continuous to ensure no growth of algae
4457	Cleaning of quartz pieces and columns	HF, HNO ₃	HF, HNO ₃	HF: 3% HNO ₃ /HF Mixture: HNO ₃ : 18% HF: 6%	Varies; estimated 1-3 gallons of acid; volume of water used to rinse columns up to 200 gallons	Acid is normally recycled. Acid bath may have to be dumped 6-8 times/year.	Batch

Reference: Nick Palaio's 4/13/09 e-mail

**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE
ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION – UNIT PAGE**

(One page and attachments per unit)

Page 21 of 53

FACILITY ID#		1.	BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As)	3.
			Lawrence Berkeley National Laboratory	

I. TREATMENT UNIT

UNIT ID# FTU 005	606.	UNIT TYPE/TIER	607.	NUMBER OF TANKS 5	608.	NUMBER OF CONTAINERS/ TREATMENT AREAS 0	609.
UNIT NAME Building 2	610.	<input type="checkbox"/> a. CESQT <input type="checkbox"/> b. CESW <input checked="" type="checkbox"/> c. CA <input type="checkbox"/> d. PBR <input type="checkbox"/> e. CEL		MONTHLY TREATMENT VOLUME 25,000	611.	UNIT OF MEASURE	612.
						<input type="checkbox"/> a. Pounds <input checked="" type="checkbox"/> b. Gallons	

SPECIFIC WASTE TYPE TREATED (narrative) 613.
 Acidic wastes are generated in various laboratories in Building 2. Acids that are discharged include: hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, nitric acid, and other acids. A listing of acid waste streams is found in the attachment, "Building 2 Fixed Treatment Unit Waste Steam Survey."

TREATMENT PROCESS DESCRIPTION (narrative) 614.
 Neutralization of acidic wastes by elementary neutralization with sodium hydroxide.

(NOTE: For each treatment unit, complete and attach the appropriate Waste and Treatment Process Combinations page.)

II. BASIS FOR NOT NEEDING FEDERAL PERMIT (Check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> a. The treated waste is not a hazardous waste under federal law (California-only waste).
<input checked="" type="checkbox"/> b. Treated in waste water treatment units (tanks) and discharged to a publicly owned treatment works (POTW)/sewerage agency or under an NPDES permit.
<input checked="" type="checkbox"/> c. Treatment in elementary neutralization units.
<input type="checkbox"/> d. Treatment in a totally enclosed treatment facility.
<input type="checkbox"/> e. Federal conditionally exempt small quantity generator (generated 100 kg., approximately 27 gallons, or less of hazardous waste in a calendar month). | <input type="checkbox"/> f. Treatment in an accumulation tank or container within 90 days for over 1,000 kg./month generators and 180 or 270 days for generators of 100 to 1,000 kg./month. 615.
<input type="checkbox"/> g. Recyclable materials are reclaimed to recover silver or other precious metals.
<input type="checkbox"/> h. Empty container rinsing and/or treatment.
<input type="checkbox"/> i. Other (specify below) |
|---|---|

III. RESIDUALS MANAGEMENT DESCRIPTION (Check all that apply)

- | | |
|--|---|
| <input checked="" type="checkbox"/> a. Discharge non-hazardous aqueous waste to POTW or sewer.
<input type="checkbox"/> b. Discharge non-hazardous aqueous waste under a NPDES permit.
<input type="checkbox"/> c. Dispose of non-hazardous solid waste residues at an offsite location. | Residual hazardous waste hauled offsite by a registered hauler. 616.
<input type="checkbox"/> d. Offsite recycling
<input type="checkbox"/> e. Thermal treatment
<input type="checkbox"/> f. Disposal to land
<input type="checkbox"/> g. Further treatment
<input type="checkbox"/> h. Other method of disposal (describe below) |
|--|---|

SECONDARY CONTAINMENT INSTALLATION DATE (If required) 1998

617.

Onsite Hazardous Waste Treatment Notification – Unit
[(Formerly DTSC Form 1772A,B,C,D,L)]

Complete an Onsite Hazardous Waste Treatment Notification - Unit page and a Waste and Treatment Process Combinations page for each treatment unit operating at this facility. Commercial Laundries are not required to complete unit specific pages, provided that laundering is the only hazardous waste treatment activity conducted by the facility. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

1. FACILITY ID NUMBER - This space is for agency use only.
3. BUSINESS NAME - Enter the complete Facility Name.
606. UNIT ID NUMBER - Enter a unique number for each unit. All unit numbers must be clearly labeled on the plot plan/map.
607. UNIT TYPE / TIER - Check the appropriate box to indicate unit type under the Tiered Permitting program.
608. NUMBER OF TANKS - Enter the number of tanks used in the unit. ["Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.]
609. NUMBER OF CONTAINERS/TREATMENT AREAS - Enter the number of containers/container treatment areas used in the unit. ["Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, disposed of, or recycled.] "Treatment Area" is a location set aside and used to treat waste in containers.
610. UNIT NAME - Enter the name of the treatment unit. A treatment unit is defined as a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system.
611. MONTHLY TREATMENT VOLUME - Enter the estimated monthly total volume of hazardous waste treated in this unit. If the volume fluctuates significantly by month, enter the maximum volume treated in any month.
612. UNIT OF MEASURE - Check a box to indicate whether the treatment volume unit of measure is pounds or gallons.
613. SPECIFIC WASTE TYPE TREATED - Describe the specific waste type(s) treated (e.g. If the waste qualifies as an aqueous waste with metals or organics, indicate the specific metals or organics).
614. TREATMENT PROCESS DESCRIPTION - Describe the treatment process(es) used. Indicate if the activities are seasonal or periodic.
615. BASIS FOR NOT NEEDING FEDERAL PERMIT - Check the reason(s) that best describe why your onsite treatment unit does not need a federal hazardous waste permit. You must indicate at least one reason to prove your eligibility for the onsite treatment tiers. If you are unsure how these exemptions apply to your operation, contact your Certified Unified Program Agency (CUPA), the DTSC Regional Office closest to you, the U.S. EPA Region IX RCRA Information Line at (415) 744-2074, or the U.S. EPA RCRA Hotline at (800) 424-9346. The eight most common reasons for not needing a federal permit are listed on this form. There is also a space to specify any other reason for exemption and a supporting regulatory citation. The following terms are defined in 40 CFR §260.10:
 - Wastewater Treatment Unit** - A device which: (1) is part of a wastewater treatment facility regulated under section 402 or 307(b) of the Clean Water Act, and (2) receives and treats or stores an influent wastewater that is a hazardous waste or that generates and accumulates a wastewater treatment sludge that is a hazardous waste or that treats or stores a wastewater treatment sludge which is a hazardous waste, and (3) meets the definition of tank or tank system.
 - Elementary Neutralization Unit** - A device which (1) is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed only for this reason, and (2) meets the definition of tank, tank system, container, transport vehicle, or vessel.
 - Totally Enclosed Treatment Facility** - A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment.
 - NPDES Permit** - A permit issued by a regional water board allowing discharge of waste to the environment under the National Pollutant Discharge Elimination System (NPDES).
616. RESIDUALS MANAGEMENT DESCRIPTION - Check the appropriate box(es) to describe how treatment residuals are managed. If box h. is checked, describe the "other" methods in the space provided.
617. SECONDARY CONTAINMENT INSTALLATION DATE - Enter the date the secondary containment was installed.

UNIFIED PROGRAM CONSOLIDATED FORM
ONSITE TIERED PERMITTING
CONDITIONALLY AUTHORIZED (CA) PAGE
WASTE AND TREATMENT PROCESS COMBINATIONS

(One page per treatment unit. Check all that apply)

UNIT ID# FTU 005	Facility ID#	Page 22 of 53
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606. 1. 629.
1. Aqueous wastes, hazardous solely due to inorganic constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 1,400 ppm total of these constituents. (There is no volume limit for this wastestream.) Treatment using:
☐ a. Phase separation, including precipitation, by filtration, centrifugation, or gravity settling, including the use of demulsifiers and flocculants.
☐ b. Ion exchange, including metallic replacement.
☐ c. Reverse osmosis.
☐ d. Adsorption.
☐ e. pH adjustment of aqueous waste with a pH of between 2.0 and 12.5.
☐ f. Electrowinning of solutions, unless those solutions contain hydrochloric acid.
☐ g. Reduction of solutions hazardous solely due to hexavalent chromium, to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfate, ferrous chloride, ferrous sulfate, ferrous sulfide, or sulfur dioxide. The solution contains less than 750 ppm of hexavalent chromium.
 2. Aqueous wastes, hazardous solely due to organic constituents listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (2)(B) and which contain less than 750 ppm total of these constituents. (There is no volume limit for this wastestream.) Treatment using:
☐ a. Phase separation by filtration, centrifugation, or gravity settling, but excluding super critical fluid extraction.
☐ b. Adsorption.
 3. Sludges resulting from wastewater treatment, dusts, solid metal objects, and metal workings which are hazardous solely due to the presence of constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which, for dusts only, contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Physical processes which constitute treatment only because they change the physical properties of the waste, such as filtration, centrifugation, gravity settling, grinding, shredding, crushing, or compacting.
☐ b. Drying to remove water.
☐ c. Separation based on differences in physical properties, such as size, magnetism, or density.
 4. Alum, gypsum, lime, sulfur, or phosphate sludges. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Drying to remove water. ☐ b. Phase separation by filtration, centrifugation, or gravity settling.
 5. Special wastes listed in Title 22, CCR, Section 66261.120 that meet the criteria in Title 22, CCR, Section 66261.122 which is hazardous solely due to the constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Drying to remove water.
☐ b. Phase separation by filtration, centrifugation, or gravity settling.
☐ c. Screening to separate components based on size.
☐ d. Separation based on differences in physical properties, such as size, magnetism, or density.
 6. Special wastes classified under Title 22, CCR, Section 66261.124 as special wastes, except asbestos, which is hazardous solely due to the constituents, except asbestos, listed in Title 22, CCR, Section 66261.24(a)(1)(B) or (a)(2)(A) and which contain less than 750 ppm total of these constituents. The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Drying to remove water. ☐ c. Magnetic separation.
☐ b. Phase separation by filtration, centrifugation, or gravity settling.
 7. Soils contaminated with metals listed in Title 22, CCR, Section 66261.24(a)(2)(A). The monthly volume treated in this unit does not exceed 5,000 gallons or 45,000 pounds. Treatment using:
☐ a. Screening to separate components based on size. ☐ b. Magnetic separation.
 8. Oil mixed with water and oil/water separation sludges. (There is no volume limit for this wastestream.) Treatment using: (NOTE: Some used oil/water separation is allowed under the CEL category.)
☐ a. Phase separation by filtration, centrifugation, or gravity settling, but excluding super critical fluid extraction, including the use of demulsifiers and flocculants. Heat can be used, but must not exceed 160 degrees Fahrenheit.
☐ b. Separation based on differences in physical properties, such as size, magnetism, or density.
☐ c. Reverse osmosis.
 9. Neutralization of acidic or alkaline wastes, hazardous solely due to corrosivity, or toxic only from the acid or caustic material, in elementary neutralization units. (There is no volume limit for this wastestream.)
☐ a. The waste contains less than 10 percent acid or base constituents by weight. There is no volume limit for this category.
☒ b. The waste contains 10 percent or more acid or base constituents by weight and is treated in batches that do not exceed 500 gallons at one time.
 10. Not in use/exempted — formerly recovery of silver from photofinishing.
 11. Not in use/sunsetted — formerly treatment of spent cleaners and conditioners which are hazardous solely due to copper or copper compounds. Treatment of this wastestream is no longer allowed under Conditional Authorization as of January 1, 1998. Treatment of this wastestream now requires authorization under either Permit by Rule or, if the total volume treated is less than 55 gallons per month, under Conditionally Exempt Small Quantity Treatment.

A waste stream technology combination certified by the Department pursuant to Section 25200.1.5 of the Health and Safety Code as appropriate for authorization under Conditional Authorization.

☐ Certified Technology Number: _____

Waste and Treatment Process Combinations Form CA Instructions (Formerly DTSC Form 1772C)

This Waste and Treatment Process Combinations page lists those waste and treatment combinations certified by the Department of Toxic Substances Control (DTSC) pursuant to Health and Safety Code (H&SC) §25200.1.5 for authorization under the Conditionally Authorized (CA) tier. [Note: 1.) Reactive and extremely hazardous wastes are not allowed to be treated under this tier; 2.) Except for dilute aqueous waste and oily waste, volume of hazardous waste treated must not exceed 5,000 gallons (45,000 pounds) per month.]

Complete a separate Waste and Treatment Process Combinations page for each unit. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

606. UNIT ID NUMBER - Enter the unit ID number (same as item 606 from the Onsite Hazardous Waste Treatment Notification - Unit form).

1. FACILITY ID NUMBER - This space is for agency use only.

629. WASTE AND TREATMENT PROCESS COMBINATIONS (CA) - Use this page only for a CA unit. Check the appropriate boxes to indicate the waste and treatment process(es) that pertain to the unit. If the process is a technology certified by DTSC, enter the Certified Technology Number (Cert. #). Certified technologies appropriate for authorization, and the eligible tiers, are listed below.

CERTIFIED TECHNOLOGIES

DTSC is authorized to certify hazardous waste technologies. Appropriate certified technologies may be eligible for the CE, CA or PBR onsite treatment tiers. As of April 1, 1999, there is one certified technology for these tiers. The certification is for aldehyde treatment processes and is eligible for the CESW tier. The approved technology is:

Technology	Vendor	Cert. #	Effective Date	Tier	Description
NeutraleX	Scigen 333 East Gardena Blvd. Gardena, CA 90248	97-01-0024	629/97 (expires 6/29/00)	CESW	Batch treatment for 10 percent Formalin generated by medical, educational, and laboratory facilities. Chemically treats in a provided 8 liter vessel. After testing, allows for disposal to sanitary sewer.

A copy of published Certification Statements and additional updates may be obtained by contacting DTSC at (916) 322-3670 or from the Cal/EPA on-line Bulletin Board via modem at (916) 322-5041.

Building 2 Fixed Treatment Unit Waste Stream Survey

Room	Description of Process	Chemicals Used in Process	Chemicals in Waste Discharge	Concentration of Chemicals in Discharge (MAX)	Average volume of Discharge (Gallons/day)	Frequency of Discharge	Continuous or Batch
102	Cleaning of glassware and teflon equipment	H2SO4, HNO3, HCl, KOH, Solvents	H2SO4, HNO3, HCl	HNO3=1% H2SO4=1% HCl=6%	20	3-10 per week	Batch
133	Cleaning and preparing silicon and germanium samples	HNO3, HF, TCE, Methanol, Acetone	HNO3, HF	HNO3=10% HF=7%	0.1	1 per week	Batch
137	Cleaning silicon wafers for lithography	NH4OH, H2O2, HCl, HF	H2O2, HCl, HF	(1) H2O2=4.2% (2) HCl=3.8% H2O2=12.5%	(1) 1.0 (2) 1.0	3 per week for ea.	Batch
137	Etching of silicon wafers	KOH, H2SO4, H2O2	H2SO4, H2O2	H2SO4=20% H2O2=10%	1.0	2 per week	Batch
216	Sample preparation - cutting, cleaning, etching	HCl, HF, HNO3, H2SO4, Acetic acid	HNO3, HF, Acetic acid	HNO3=10% CH3COOH=15% HF=7%	0.3	2-3 per week	Batch
224	Germanium Etching	HNO3, HT, Pd, Cr, Methanol	HNO3, HF	HNO3=7% HF=6%	0.5	3 per week	Batch
236	Cleaning wafers for lithography	HF, H3PO4, Chlorobenzene	HF, H3PO4	HF=7% H3PO4=5%	0.2	1 per week	Batch
229	Etching silicon wafers	HNO3, HF, NH4OH, HCl, H2O2, Methanol, TCE	HNO3, HF, HCl	HNO3=15% HF=2.5% HCl=5%	3.4	2 per month	Batch
260A	Germanium crystal growth	HNO3, HF, Methanol	HNO3, HF	HNO3=10% HF=7%	1	1 per week	Batch

Building 2 Fixed Treatment Unit Waste Stream Survey

Room	Description of Process	Chemicals Used in Process	Chemicals in Waste Discharge	Concentration of Chemicals in Discharge (MAX)	Average volume of Discharge (Gallons/day)	Frequency of Discharge	Continuous or Batch
261A	Etching gallium arsenide, quartz, & silicon in crystal growth experiments	HNO ₃ , HF, HCl, H ₂ SO ₄ , KOH, NaOH, Methanol, Acetone, TCE, 1,1,1-TCA	HNO ₃ , HF, HCl, H ₂ SO ₄ , H ₂ O ₂	H ₂ SO ₄ =15% H ₂ O ₂ =15% HNO ₃ =10% HF=7% HCl=5%	1	HCl/HNO ₃ /HF = 2 per month HF = 2 per week	Batch
263A	Sample preparation - cutting, cleaning, etching	HCl, HF, HNO ₃ , H ₂ SO ₄ , Acetic acid	HNO ₃ , HF, Acetic acid	CH ₃ COOH=15% HNO ₃ =10% HF=7%	0.2	H ₂ SO ₄ = 4 per week 2-3 per week	Batch
340	Cleaning of glass coverslips for single molecule studies using confocal microscopy	HF	HF	HF=5%	0.25	5 days per week	Batch
422	Cleaning silicon nitride	HCl, H ₂ SO ₄ , H ₂ O ₂ , NaOH, KOH	HCl, H ₂ SO ₄	H ₂ SO ₄ =15% HCL=6%	0.02	1-2 per week	Batch

NOTE: the "Volume of Discharge" column represents the volume of waste that is discharged to acid sinks. Also see "Classification of Hydrofluoric Acid Mixtures".

Revised 2/10/98. Rooms 322 & 338 no longer discharge acid waste. 3/4/10.

R. Fox/B2 FTU Permit/FTU 2 survey 030410 update.doc

CLASSIFICATION OF HYDROFLUORIC ACID MIXTURES

BACKGROUND:

On December 17, 1993, Mr. David McGraw, Director of Environment, Health & Safety Division at Lawrence Berkeley Laboratory, requested a determination on whether dilute solutions of hydrofluoric acid are considered extremely hazardous wastes from Mr. James Strock, Director of California Environmental Protection Agency. (DIR93-151). Mr. Strock routed the letter to Mr. Ronald Pilorin, Chief of the Waste Evaluation Unit, Cal-EPA. Mr. Pilorin responded to Mr. McGraw on January 20, 1993.

In Mr. Pilorin's letter he noted,

"As you are well aware, there are no identified or approved testing methods to determine whether a waste which contains a water reactive substance such as hydrofluoric ... acid would be considered to be water reactive." He further states, "Section 66262.11, 22 CCR, states that a 'generator may determine that the waste from his particular facility or operation is not a hazardous waste [or an extremely hazardous waste, R.P.] by either: (1) testing the waste,...; or (2) applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used and the [hazardous waste or extremely hazardous waste, R.P.] characteristics,...' In absence of test methods identified within the extremely hazardous waste criteria, ANY test methods or assessment techniques can be used to satisfy the requirement for knowledge about the waste. Any other source of information may be used for this purpose as well. Unfortunately, at this time the Department does not have the staff or resources to immediately develop a specific test method." (emphasis added)

KNOWLEDGE OF THE WASTE:

From a survey of the users of the fixed treatment unit at building 2 (FTU 005) it has been determined that the highest percent of hydrofluoric acid, at the point of generation, is under 10% hydrofluoric acid. Typically, the hydrofluoric acid volume is 500 milliliters or less.

A report prepared by a certified professional chemical engineer at Sampson Engineering Associates (SAE) entitled, "Hydrofluoric Acid Hazardous/Extremely Hazardous Waste Classification", concludes that, "...liquids containing HF [hydrofluoric acid] at less than 38.2 weight percent concentration (it may be possible to demonstrate this conclusion for 47 weight percent solutions [SAE]) should be regulated as hazardous, not extremely hazardous."

Our past experience with solutions of less than 10% hydrofluoric acid also show that these solutions are not water reactive and therefore do not meet extremely hazardous waste criteria.

CONCLUSION:

Solutions of hydrofluoric acid less than 38.2% hydrofluoric acid are not extremely hazardous. These waste solutions will be managed as a hazardous waste.

**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE
ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION – UNIT PAGE**

(One page and attachments per unit)

Page 26 of 53

FACILITY ID#		1.	BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As)	3.
			Lawrence Berkeley National Laboratory	

I. TREATMENT UNIT

UNIT ID# FTU 006	606.	UNIT TYPE/TIER	607.	NUMBER OF TANKS 17	608.	NUMBER OF CONTAINERS/ TREATMENT AREAS 0	609.
UNIT NAME Building 77 Ultra High Vacuum Cleaning Facility	610.	<input type="checkbox"/> a. CESQT <input type="checkbox"/> b. CESW <input type="checkbox"/> c. CA <input checked="" type="checkbox"/> d. PBR <input type="checkbox"/> e. CEL		MONTHLY TREATMENT VOLUME 10,000	611.	UNIT OF MEASURE	612.
						<input type="checkbox"/> a. Pounds <input checked="" type="checkbox"/> b. Gallons	

SPECIFIC WASTE TYPE TREATED (narrative) 613.
Aqueous waste and sludge containing metals listed in 22 CCR 66261.24(a)(2).

TREATMENT PROCESS DESCRIPTION (narrative) 614.
Metals precipitation, pH adjustment, and sludge dewatering. See attached, "Process Description, Ultra High Vacuum Cleaning Facility & Fixed Treatment Unit FTU 006" for a more detailed description of the treatment process.

(NOTE: For each treatment unit, complete and attach the appropriate Waste and Treatment Process Combinations page.)

II. BASIS FOR NOT NEEDING FEDERAL PERMIT (Check all that apply)

<input type="checkbox"/> a. The treated waste is not a hazardous waste under federal law (California-only waste). <input checked="" type="checkbox"/> b. Treated in waste water treatment units (tanks) and discharged to a publicly owned treatment works (POTW)/sewerage agency or under an NPDES permit. <input type="checkbox"/> c. Treatment in elementary neutralization units. <input type="checkbox"/> d. Treatment in a totally enclosed treatment facility. <input type="checkbox"/> e. Federal conditionally exempt small quantity generator (generated 100 kg., approximately 27 gallons, or less of hazardous waste in a calendar month).	<input type="checkbox"/> f. Treatment in an accumulation tank or container within 90 days for over 1,000 kg./month generators and 180 or 270 days for generators of 100 to 1,000 kg./month. 615. <input type="checkbox"/> g. Recyclable materials are reclaimed to recover silver or other precious metals. <input type="checkbox"/> h. Empty container rinsing and/or treatment. <input type="checkbox"/> i. Other (specify below)
--	---

III. RESIDUALS MANAGEMENT DESCRIPTION (Check all that apply)

<input checked="" type="checkbox"/> a. Discharge non-hazardous aqueous waste to POTW or sewer. <input type="checkbox"/> b. Discharge non-hazardous aqueous waste under a NPDES permit. <input type="checkbox"/> c. Dispose of non-hazardous solid waste residues at an offsite location.	Residual hazardous waste hauled offsite by a registered hauler. 616. <input type="checkbox"/> d. Offsite recycling <input type="checkbox"/> e. Thermal treatment <input checked="" type="checkbox"/> f. Disposal to land <input checked="" type="checkbox"/> g. Further treatment <input type="checkbox"/> h. Other method of disposal (describe below)
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SECONDARY CONTAINMENT INSTALLATION DATE (If required) 1990

617.

Onsite Hazardous Waste Treatment Notification – Unit
[(Formerly DTSC Form 1772A,B,C,D,L)]

Complete an Onsite Hazardous Waste Treatment Notification - Unit page and a Waste and Treatment Process Combinations page for each treatment unit operating at this facility. Commercial Laundries are not required to complete unit specific pages, provided that laundering is the only hazardous waste treatment activity conducted by the facility. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

1. FACILITY ID NUMBER - This space is for agency use only.
3. BUSINESS NAME - Enter the complete Facility Name.
606. UNIT ID NUMBER - Enter a unique number for each unit. All unit numbers must be clearly labeled on the plot plan/map.
607. UNIT TYPE / TIER - Check the appropriate box to indicate unit type under the Tiered Permitting program.
608. NUMBER OF TANKS - Enter the number of tanks used in the unit. ["Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.]
609. NUMBER OF CONTAINERS/TREATMENT AREAS - Enter the number of containers/container treatment areas used in the unit. ["Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, disposed of, or recycled.] "Treatment Area" is a location set aside and used to treat waste in containers.
610. UNIT NAME - Enter the name of the treatment unit. A treatment unit is defined as a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system.
611. MONTHLY TREATMENT VOLUME - Enter the estimated monthly total volume of hazardous waste treated in this unit. If the volume fluctuates significantly by month, enter the maximum volume treated in any month.
612. UNIT OF MEASURE - Check a box to indicate whether the treatment volume unit of measure is pounds or gallons.
613. SPECIFIC WASTE TYPE TREATED - Describe the specific waste type(s) treated (e.g. If the waste qualifies as an aqueous waste with metals or organics, indicate the specific metals or organics).
614. TREATMENT PROCESS DESCRIPTION - Describe the treatment process(es) used. Indicate if the activities are seasonal or periodic.
615. BASIS FOR NOT NEEDING FEDERAL PERMIT - Check the reason(s) that best describe why your onsite treatment unit does not need a federal hazardous waste permit. You must indicate at least one reason to prove your eligibility for the onsite treatment tiers. If you are unsure how these exemptions apply to your operation, contact your Certified Unified Program Agency (CUPA), the DTSC Regional Office closest to you, the U.S. EPA Region IX RCRA Information Line at (415) 744-2074, or the U.S. EPA RCRA Hotline at (800) 424-9346. The eight most common reasons for not needing a federal permit are listed on this form. There is also a space to specify any other reason for exemption and a supporting regulatory citation. The following terms are defined in 40 CFR §260.10:
 - Wastewater Treatment Unit** - A device which: (1) is part of a wastewater treatment facility regulated under section 402 or 307(b) of the Clean Water Act, and (2) receives and treats or stores an influent wastewater that is a hazardous waste or that generates and accumulates a wastewater treatment sludge that is a hazardous waste or that treats or stores a wastewater treatment sludge which is a hazardous waste, and (3) meets the definition of tank or tank system.
 - Elementary Neutralization Unit** - A device which (1) is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed only for this reason, and (2) meets the definition of tank, tank system, container, transport vehicle, or vessel.
 - Totally Enclosed Treatment Facility** - A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment.
 - NPDES Permit** - A permit issued by a regional water board allowing discharge of waste to the environment under the National Pollutant Discharge Elimination System (NPDES).
616. RESIDUALS MANAGEMENT DESCRIPTION - Check the appropriate box(es) to describe how treatment residuals are managed. If box h. is checked, describe the "other" methods in the space provided.
617. SECONDARY CONTAINMENT INSTALLATION DATE - Enter the date the secondary containment was installed.

UNIFIED PROGRAM CONSOLIDATED FORM
ONSITE TIERED PERMITTING
PERMIT BY RULE (PBR) PAGE
WASTE AND TREATMENT PROCESS COMBINATIONS

(One page per treatment unit. Check all that apply)

606.

1.

UNIT ID# FTU 006

Facility ID#

Page 27 of 53

1. Aqueous wastes containing hexavalent chromium may be treated by the following process: 630.
Reduction of hexavalent chromium to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfate, ferrous sulfate, ferrous sulfide or sulfur dioxide provided
☐ a. both pH and addition of the reducing agent are automatically controlled.
2. Aqueous wastes containing metals listed in Title 22, CCR, Section 66261.24 (a)(2) and/or fluoride salts may be treated by the following technologies:
☒ a. pH adjustment or neutralization. ☐ g. Plating the metal onto an electrode.
☒ b. Precipitation or crystallization. ☐ h. Electrodialysis
☐ c. Phase separation by filtration, centrifugation or gravity settling. ☐ i. Electrowinning or electrolytic recovery
☐ d. Ion exchange. ☐ j. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ e. Reverse osmosis. ☐ k. Evaporation.
☐ f. Metallic replacement. ☐ l. Adsorption
3. Aqueous wastes with total organic carbon less than 10% as measured by EPA Method 9060 and less than 1% total volatile organic compounds as measured by EPA Method 8240 may be treated by the following technologies:
☐ a. Phase separation by filtration, centrifugation or gravity settling, but excluding super critical fluid extraction.
☐ b. Adsorption.
☐ c. Distillation.
☐ d. Biological processes conducted in tanks or containers and utilizing naturally occurring microorganisms.
☐ e. Photodegradation using ultraviolet light, with or without the addition of hydrogen peroxide or ozone, provided the treatment is conducted in an enclosed system.
☐ f. Air stripping or steam stripping.
4. Sludges, dusts, solid metal objects and metal workings which contain or are contaminated with metals listed in Title 22, CCR, Section 66261.24 (a)(2) and/or fluoride salts may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☒ b. Physical processes which change only the physical properties of the waste such as grinding, shredding, crushing or compacting.
☒ c. Drying to remove water.
☐ d. Separation based on differences in physical properties such as size, magnetism or density.
5. Alum, gypsum, lime, sulfur or phosphate sludges may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions. ☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ b. Drying to remove water.
6. Wastes identified in Title 22, CCR, Section 66261.120, that meet the criteria and requirements for special waste classification in Section 66261.122 may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Screening to separate components based on size.
☐ e. Separation based on differences in physical properties such as size, magnetism or density.
7. Wastes, except asbestos, which have been classified by the Department as special wastes pursuant to Title 22, CCR, Section 66261.124, may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions. ☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ b. Drying to remove water. ☐ d. Magnetic separation.
8. Inorganic acid or alkaline wastes may be treated by the following technology:
☐ a. pH adjustment or neutralization.
9. Soils contaminated with metals listed in Title 22, CCR, Section 66261.24(a)(2), (Persistent and Bioaccumulative Toxic Substances) may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions. ☐ c. Magnetic separation.
☐ b. Screening to separate components based on size.
10. Used oil, unrefined oil waste, mixed oil, oil mixed with water and oil/water separation sludges may be treated by the following technologies:
☐ a. Phase separation by filtration, centrifugation or gravity settling, but excluding super critical fluid extraction.
☐ b. Distillation.
☐ c. Neutralization.
☐ d. Separation based on differences in physical properties such as size, magnetism or density.
☐ e. Reverse osmosis.
☐ f. Biological processes conducted in tanks or containers and utilizing naturally occurring microorganisms.
11. Containers of 110 gallons or less capacity which are not constructed of wood, paper, cardboard, fabric, or any other similar absorptive material, which have been emptied as specified in Title 40 of the Code of Federal Regulations, section 261.7 or inner liners removed from empty containers that once held hazardous waste or hazardous material and which are not excluded from regulation may be treated by the following technologies provided the treated containers and rinseate are managed in compliance with applicable requirements.
☐ a. Rinsing with a suitable liquid capable of dissolving or removing the hazardous constituents which the container held.
☐ b. Physical processes such as crushing, shredding, grinding or puncturing, that change only the physical properties of the container or inner liner, provided the container or inner liner is first rinsed and the rinseate is removed from the container or inner liner.
12. Multi-component resins may be treated by the following process:
☐ a. Mixing the resin components in accordance with the manufacturer's instructions.
- A waste stream technology combination certified by the Department pursuant to Section 25200.1.5 of the Health and Safety Code as appropriate for authorization under Permit by Rule.
☐ Certified Technology Number: _____

Waste and Treatment Process Combinations Form PBR Instructions (Formerly DTSC Form 1772D)

This Waste and Treatment Process Combinations page lists those waste and treatment combinations certified by the Department of Toxic Substances Control (DTSC) pursuant to Health and Safety Code (H&SC) §25200.1.5 for authorization under the Permit by Rule (PBR) tier. (Note: Reactive and extremely hazardous wastes are not allowed to be treated under this tier.)

Complete a separate Waste and Treatment Process Combinations page for each unit. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

606. UNIT ID NUMBER - Enter the unit ID number (same as item 606 from the Onsite Hazardous Waste Treatment Notification - Unit form).

1. FACILITY ID NUMBER - This space is for agency use only.

630. WASTE AND TREATMENT PROCESS COMBINATIONS (PBR) - Use this page only for a PBR unit. Check the appropriate boxes to indicate the waste and treatment process(es) that pertain to the unit. If the process is a technology certified by DTSC, enter the Certified Technology Number (Cert. #). Certified technologies appropriate for authorization, and the eligible tiers, are listed below.

CERTIFIED TECHNOLOGIES

DTSC is authorized to certify hazardous waste technologies. Appropriate certified technologies may be eligible for the CE, CA or PBR onsite treatment tiers. As of April 1, 1999, there is one certified technology for these tiers. The certification is for aldehyde treatment processes and is eligible for the CESW tier. The approved technology is:

Technology	Vendor	Cert. #	Effective Date	Tier	Description
NeutraleX	Scigen 333 East Gardena Blvd. Gardena, CA 90248	97-01-0024	629/97 (expires 6/29/00)	CESW	Batch treatment for 10 percent Formalin generated by medical, educational, and laboratory facilities. Chemically treats in a provided 8 liter vessel. After testing, allows for disposal to sanitary sewer.

A copy of published Certification Statements and additional updates may be obtained by contacting DTSC at (916) 322-3670 or from the Cal/EPA on-line Bulletin Board via modem at (916) 322-5041.

**Process Description
Ultra High Vacuum Cleaning Facility &
Fixed Treatment Unit FTU 006
LBNL - Building 77**

The Ultra High Vacuum Cleaning Facility (UHVCF) at building 77 conducts treatment of aluminum and non-aluminum metal parts through cleaning and/or application of a satin finish (desmut bath and rinse). An estimated maximum of 10,000 gallons/month of wastewater associated with these various processes are treated in the Fixed Treatment Unit, FTU 006. The wastewater is generated from rinse tanks and process equipment pieces within the UHVCF.

An acid waste is generated by six flow-through rinse tanks. The effluent from the rinse tanks flows to a dedicated acid sump and then is pumped to FTU 006 for treatment. These rinse tanks rinse parts which come from the following baths:

- chromic/nitric acid bright dip bath
- sulfuric/nitric acid bright dip bath
- hydrochloric acid bath (pickling)
- phosphoric/sulfuric acid bath (stainless steel electropolish)
- sodium bisulfate bath (oxide remover, desmut)
- hydrofluoric acid bath
- electroless nickel bath
- blue anodize bath
- black anodize bath
- iridite 14-2 bath
- nickel acetate seal bath
- sulfuric acid anodize bath
- ferric chloride etch rinse water (Chemcut Etcher)

An alkaline waste, typically below pH 12 at the point of generation, is generated from two flow-through rinse tanks. The effluent from the rinse tanks flows to a dedicated caustic sump and then is pumped to FTU 006 for treatment. These rinse tanks rinse parts which come from the following baths:

- sodium hydroxide bath (caustic etch)
- sodium hydroxide/acetylsalicylic acid/zinc oxide bath (B.N. cleaner)

An additional alkaline waste from Building 77H, typically below pH 12 at the point of generation, is generated from a couple of processes: Riston Stripper and Silk-Screening Cleaner. Parts are rinsed from these two processes in the sink in Building 77H which flows to a caustic sump (sump #2) in Building 77, room 156, and then is pumped to FTU 006 for treatment. The alkaline waste from Building 77 H is generated from the following process:

- Potassium Hydroxide (Riston Stripper)
- Sodium Hydroxide (Silk-Screening cleaner)

Process Description
Ultra High Vacuum Cleaning Facility &
Fixed Treatment Unit FTU 006
LBNL - Building 77

Additional non-routine bench top processes may also contribute to the acid/metals waste stream. A non-routine bench top process could involve nickel plating a small part in a 250 milliliter beaker and then dipping the part in a rinse water bath (which drains to the acid sump) for cleaning. Another non-routine bench top process could involve brush plating a small area (e.g. 4 square inches) of a large part to repair that part. This large part would then be dipped into a rinse water bath (which drains to the acid sump) for cleaning.

The Fixed Treatment Unit, FTU 006, provides the following treatment to rinse water:

- Sodium metabisulfite and sodium hydroxide are added automatically for hexavalent chromium reduction.
- Neutralization of the wastewater occurs through automatic pH adjustment.
- Metals removal occurs through flocculation with a polyelectrolyte and clarification.
- Sludge is dewatered in a filter press.
- Filter cake is dried in a low temperature, closed loop air handling system (J-Mate Batch Dryer).

The Fixed Treatment Unit, FTU 006, treats two waste streams coming from the B77 UHVCF. One waste stream contains metals, hexavalent chromium, and typically has a pH below 2 (acid sump). The second waste stream contains a mixture of bases (caustic sump).

Tank 4, an acid rinse storage tank, receives incoming acid rinse water from the B77 UHVCF acid sump. The acid wastewater from Tank 4 flows to Tank 5A, where the acid waste is neutralized with sodium hydroxide and hexavalent chromium is reduced with the addition of sodium metabisulfite. The acid wastewater flows from Tank 5A to Tank 5B. Tank 5B provides further neutralization with sodium hydroxide and further reduction of hexavalent chromium with sodium metabisulfite. Tank 3 receives incoming alkaline waste from the B77 caustic sump. The alkaline wastewater from Tank 3 flows to Tank 6, where the alkaline wastewater is neutralized with sulfuric acid.

After pH adjustment, the wastewater from Tank 5B flows into Tank 6 and Tank 6 flows into Tank 7, a flocculation tank, where, with the addition of a flocculating agent and a polyelectrolyte coagulant, the dissolved metals begin to form a flocculent. The wastewater/flocculent flows into Tank 8, a clarifier, where the flocculent is thickened and removed. The removed flocculent or sludge flows to a filter press, where the sludge is dewatered. The water from the filter press is pumped back to Tank 4 (the acid rinse storage tank), where the treatment process begins, and is then treated to remove any metals.

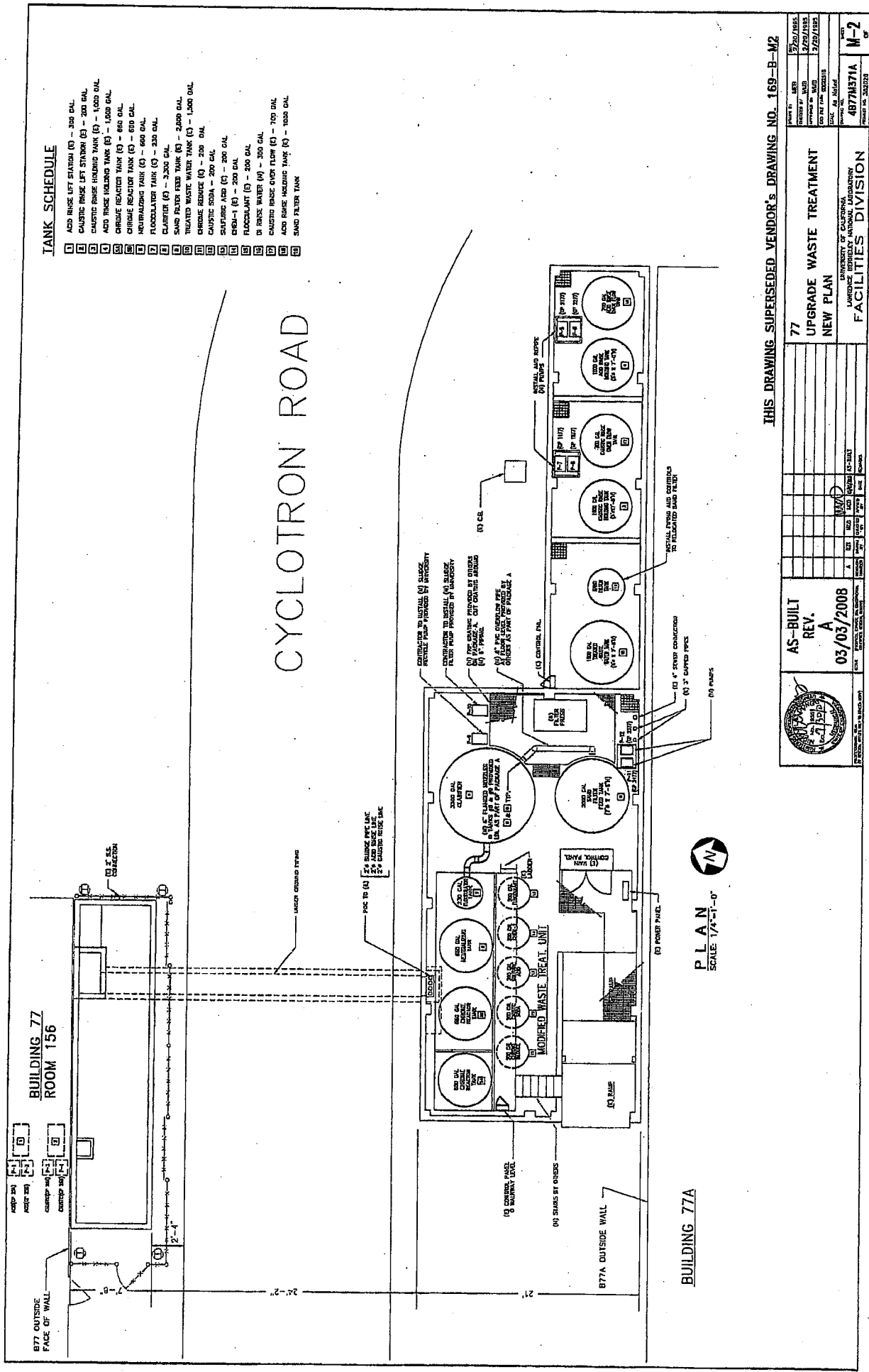
The treated wastewater exits Tank 8 and flows to Tank 9, an effluent storage tank. The treatment system has been designed to meet East Bay Municipal Utility District (EBMUD) discharge limits once the treated wastewater leaves Tank 9. However, a sand filter (Tank 19), which will reduce metal concentration further, has been placed between Tank 9 and the point of sewer discharge. For maintenance purposes, the sand filter may be bypassed if necessary. The sand filter is the first piece of equipment required for a future recycling system that will recycle all wastewater back to the B77 UHVCF. The sand filter

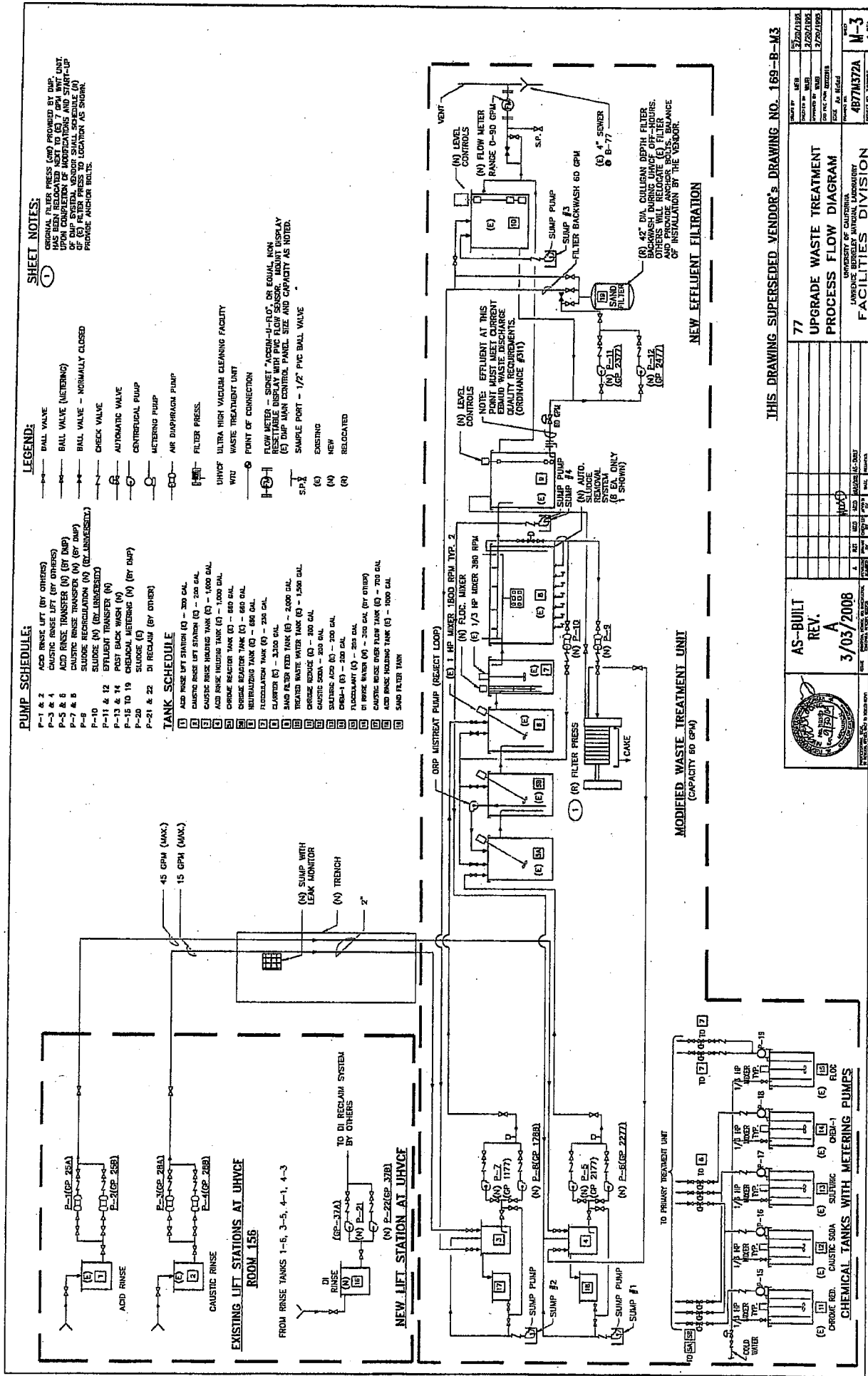
**Process Description
Ultra High Vacuum Cleaning Facility &
Fixed Treatment Unit FTU 006
LBNL - Building 77**

(Tank 19) is backwashed into Tank 10 during B77 UHVCF off hours. The backwash from Tank 10 is pumped to Tank 3 and then to Tank 6 & 7, where neutralization and then flocculation to precipitate metals occurs.

To ensure contaminant levels do not exceed permissible levels established in EBMUD's discharge requirements, wastewater discharged to EBMUD is periodically sampled and analyzed according to a schedule determined annually upon EBMUD permit renewal, currently four times per year.

This treatment process generates a sludge which contains metals. The sludge is dewatered in a filter press. The resulting filter cake is then put in a low heat batch dryer (US Filter, J-Mate, model J-203) to further remove water. The dried filter cake, a residual hazardous waste, typically contains cadmium, chromium, and lead. The filter cake is collected in a 55-gallon drum for transportation. The waste drum of filter cake is picked up by Waste Management staff and taken to the Hazardous Waste Handling Facility (HWHF). The filter cake waste is stored at the HWHF until analytical test results are received to fully characterize the waste. Then the waste drum is prepared for shipment off-site by Waste Management staff so that the waste may undergo further treatment. Shipment off-site is by a registered hazardous waste hauler. An estimated maximum of 200 pounds of filter cake is generated per year.





Strangio and Associates

CIVIL & ENVIRONMENTAL ENGINEERS

1789 COTTLE AVE.

SAN JOSE, CA 95125

(408) 978-9604

FAX (408) 448-5284

Mr. Pablo Orozco, Project Manager
Operation Division, Facilities Department
Lawrence Berkeley Laboratory
1 Cyclotron Road
Berkeley, Ca. 94720

3-7-96

Ref: Certification of Containment and Tankage for PBR Authorization

Dear Mr. Orozco:

Based on my onsite visits and examination of the containment and tankage(DMP Waste Water Treatment System) located at Building 77 as well as design drawings I found the following conditions.

For the purposes of this certification the treatment system consists of the transfer tankage, pumps, piping, and containment of the units which transfer wastewater to the treatment system as well as the discrete treatment system and its containment.

The containment consists of coated concrete vaults of sufficient size to contain the volumes required under the containment guidelines. The vaults are located under an overhanging roof, and all the areas are equipped with a fire suppression sprinkler system consisting of area sprinklers as well as duct sprinklers(where applicable).

The treatment area tanks are all constructed of fiberglass/epoxy with builtin earthquake restraining clips. They were fabricated and installed approximately 10 years ago, however they were never put into use. They appear to be in a like new condition and can be expected to have an extended service life. It would be prudent to carry out periodic inspections to be assured that there is no delamination, or exposed fibers that need to be recoated.

The attached stamped list constitute the tanks which are a part of this certification under the following regulations:

Title 22, Code of California Regulations(CCR):

Section 6626.175(c) Containment

The containment system as presently configured is suitably designed to contain and control leaks, spills, and sprinkler flows.

Section 66265.192(a)(1) Design Standards
Meets the required design standards

Section 66265.192(a)(2) Hazardous Characteristics of Waste

The systems are compatible with the chemicals being treated.

Section 66265.192(a)(3) Corrosion Protection

Meets all regulatory requirements and should not be adversely affected in any way.

Section 66265.192(a)(4) Underground Protection

Appears to meet regulatory requirements based on the inspection.

Section 66265.192(a)(5) Foundation and Seismic Design

Appears to meet regulatory requirements based on the inspection.

Section 66265.193(c)(2) Compatibility, Strength, and Thickness

The structural integrity of the concrete containment structure appears to meet regulatory requirements based on the inspection.

Section 66265.193(c)(3) Leak Detection and Alarm

Appears to meet regulatory requirements based on inspection.

Section 66265.193(e)(2) Volume and Draining of Secondary Containment

Adequate volume is provided.

Section 66265.193(e)(2) Freedom from Gaps and Cracks in the Secondary Containment

Gaps and cracks previously noted have been repaired and the coating now meets the regulatory requirements.

I hereby certify that the referenced system and containment meets the requirements of Title 22. (See attached Tank List)

Yours Truly



William Strangio, D.Sc., P.E.



TANKAGE IN MAIN CONTAINMENT

Tank Number		MAT.	CONDITION
5 - Chrome Treatment Tank	- 600 gal	FG	Good
6 - Neutralizing Tank	- 680 gal	"	"
7 - Flocculation Tank	- 230 gal	"	"
8 - Clarifier	- 3,300 gal	"	"
9 - Effluent Storage	- 2,000 gal	"	"
Total Volume in this area - 6,810 gal			

TANKAGE IN FILTER AREA

10 - Backwash storage	- 1,500 gal	"	"
Filter	- 200 gal	Steel	New
Total volume in this area - 1,700 gal			

TANKAGE IN ACID RINSE AREA

3 - Acid rinse storage	- 1,000 gal	FG	Good
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TANKAGE IN CAUSTIC RINSE STORAGE

4 - Caustic rinse storage	- 1,000 gal	"	"
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TANKAGE IN UHVF SHOP

ACID - Dilute Rinse	- 130 gal	Polypro	New
CAUSTIC - Dilute Rinse	- 130 gal	"	"
DI RINSE - Dilute Rinse	- 130 gal	"	"

	STORAGE GAL	AREA SF	SPRINKLER GALS(in 20 min)
MAIN CONTAINMENT AREA	5245	701	2103
BACKWASH STORAGE CON.	2623	117	351
ACID RINSE STOR. CON.	2480	111	333
CAUSTIC RINSE STOR. CON.	2241	100	300
UHVF SHOP CON	10790	1500	8500

Strangio and Associates

CIVIL & ENVIRONMENTAL ENGINEERS

1789 COTTLE AVE.

SAN JOSE, CA 95125

(408) 978-9604

FAX (408) 448-5284

Mr. Lonnie Simonian Project Manager
Operation Division, Facilities Department
Lawrence Berkeley Laboratory
1 Cyclotron Road
Berkeley, Ca. 94720

9-21-99

Ref: Certification of Additional Tankage for PBR Authorization - Bldg.77

Dear Mr.Simonian:

Based on my onsite visit of 9-18-99, and a detailed examination of the four tanks not previously certified of the tankage which constitutes a portion of the DMP provided Waste Water Treatment System, located at Building 77, as well as a review of system drawings I found the following conditions.

For the purposes of this certification, the additional four tanks consists of: an existing, but not actively used tank which has been re-piped and equipped to perform an addition stage of Chrome Reduction, there by increasing the nominal treatment capacity. The second tank consists of an existing tank which was already in service(and previously certified) which has been modified by the addition of a settling cone and the addition of sludge removal piping through the tank wall. The third and fourth tanks, were the addition of two existing tanks(unused) to serve the purpose of providing more storage capacity as "overflow" tanks, thereby increasing the margin of safety for storage of wastewater flows.

It should be pointed out that when this Building was previously certified in March of 1996, the tankage mentioned above was included in that certification of containment and tankage, however all four tanks are being used for different purposes or have been modified in some way.

The attached stamped list constitute the tanks which are a part of this certification under the following regulations: Title 22, Code of California Regulations(CCR):

Section 66265.175(c) Containment - The containment system as presently configured is suitably designed to contain and control leaks, spills, and sprinkler flows.

Section 66265.192(a)(1) Design Standards - Meets the required design standards

Section 66265.192(a)(2) Hazardous Characteristics of Waste -The systems are compatible with the chemicals being treated.

Section 66265.192(a)(3) Corrosion Protection-Meets all regulatory requirements and should not be adversely affected in any way.

Section 66265.192(a)(4) Underground Protection - Appears to meet regulatory requirements based on the inspection.

Section 66265.192(a)(5) Foundation and Seismic Design - Appears to meet regulatory requirements based on the inspection.

Section 66265.192(k) Tank System Assessment - The tanks are described on the attached pages and comply with the information requested.

Section 66265.193(c)(2) Compatibility, Strength, and Thickness - The structural integrity of the concrete containment structure appears to meet regulatory requirements based on the inspection.

Section 66265.193(c)(3) Leak Detection and Alarm - Appears to meet regulatory requirements based on inspection.

Section 66265.193(e)(2) Volume and Draining of Secondary Containment - Adequate volume is provided.

Section 66265.193(e)(2) Freedom from Gaps and Cracks in the Secondary Containment - Gaps and cracks previously noted have been repaired and the coating now meets the regulatory requirements.

I hereby certify that the referenced system and containment meets the requirements of Title 22.
(See attached Tank List)

Yours Truly



William Strangio, D.Sc., P.E.

cc. Robert Fox



TANK CERTIFICATION INSPECTION REPORT
SEPTEMBER 1999

TANK NAME - Chrome Reactor Tank - T 5A MANUFACTURER - Red Ewald Co.

COMPANY SERIAL NUMBER - #20842 NOMINAL CAPACITY - 660 gallons

DIMENSIONS - 58" dia. X 54" H to rim YEAR of MANUF. - 1989

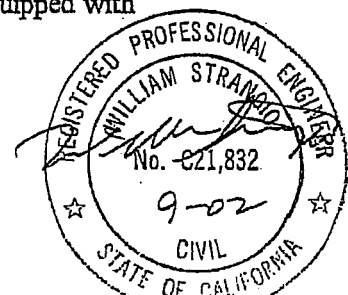
DESCRIPTION - The tank is a laminated fiberglass and epoxy resin open top cylindrical vertical tank, which is equipped with four(4) holddown clips. The nominal wall thickness is 1/2", with bottom edge banding of approximately 1" thickness where the holddown clips are located. The upper edge of the tank has a 2" wide rim, to which is attached a polypro sectional tank cover. Influent waste pipes and recirculation lines enter the tank through the upper cover. There is one(1) 4" diameter line leaving the side of the tank for connection to Tank 5 B. The tank exterior is painted grey and is labeled with colored labels of sufficient size. The manufacturer has attached a stainless steel identification plate to the tank. The tank is in excellent condition, with no evidence of delamination or degradation of any type.

Both the tank materials and the connecting piping are composed of materials which are impervious to long term exposures to the wastewater components and the treatment chemicals

The tank can be expected to have an extended service life of an additional 10 to 15 years, even though it is now 10 years old.

Periodic inspections(on a yearly basis) should be a standard practice. to determine the tanks condition and also the state of the piping connected to the tank(which is in like new condition).

The tank is located within the main secondary containment berm which houses most of the treatment system components. It is supported by and anchored to metal stands(which in turn are anchored to the base slab), which provides for gravity flow through the system to a post clarification holding tank. The secondary containment berm is equipped with sensors to detect liquid leaks.



TANK NAME - Clarifier Tank

MANUFACTURER - Red Ewald Co.

COMPANY SERIAL NUMBER - #20901

NOMINAL CAPACITY - 3300 gallons

DIMENSIONS - 107" dia. X 84" H to rim

YEAR of MANUF. - 1989

DESCRIPTION - The tank is a laminated fiberglass and epoxy resin open top cylindrical vertical tank, which is equipped with eight(8) hold down clips. The nominal wall thickness is 3/4", with bottom edge banding of approximately 1 1/4" thickness where the holddown clips are located. Because of the height of the tank side wall, the tank restraints are anchored directly to the coated concrete base slab. The upper edge of the tank has a 3" wide rim from which the tanks outlet weir is suspended. Influent waste pipes and effluent pipes are attached to the tank walls at height of 40" from grade. There are two(2) 3" diameter blind flanged outlets on opposite sides of the tank, and two(2) 6" diameter lines located at approximately 90 degree from each other which constitute the influent and effluent lines. In addition there are two(2") diameter sludge lines at the bottom edge of the tank. The tank exterior is painted grey and is labeled with colored labels of sufficient size. The manufacturer has attached a stainless steel identification plate to the tank. The tank is in excellent condition, with no evidence of delamination or degradation of any type. The tank can be expected to have an extended service life of an additional 10 to 15 years, even though it is now 10 years old.

Both the tank materials and the connecting piping are composed of materials which are impervious to long term exposures to the wastewater components and the treatment chemicals.

Just prior to the certification inspection a cone insert had been added to the interior of the tank to improve the removal of the settling sludge. The cone was fabricated of an epoxy/fiberglass laminate. It is expected that the cone shall have a service life identical to the tank.

Periodic inspections(on a yearly basis) should be a standard practice. to determine the tanks condition and also the state of the piping connected to the tank(which is presently in a like new condition).

TANK NAME - ACID RINSE OVERFLOW TANK T 18 MANUF. - Red Ewald Co.

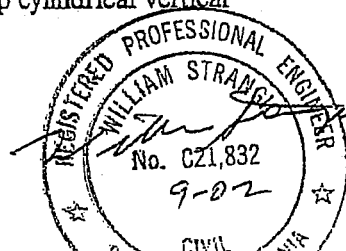
COMPANY SERIAL NUMBER - #20837

NOMINAL CAPACITY - 730 gallons

DIMENSIONS - 60" dia. X 60" H to rim

YEAR of MANUF. - 1989

DESCRIPTION - The tank is a laminated fiberglass and epoxy resin open top cylindrical vertical



tank, which is equipped with four(4) holdown clips, which hold the tank directly to the coated concrete base slab. The nominal wall thickness is 1/2", with bottom edge banding of approximately 1" thickness where the holdown clips are located. The upper edge of the tank has a 2" wide rim, to which is attached a polypro sectional tank cover. An Influent waste overflow line enters the tank through the upper cover. There is one(1) 1 1/2" diameter line leaving the side of the tank near the bottom for connection to the transfer pumps. The tank exterior is painted grey and is labeled with colored labels of sufficient size. The manufacturer has attached a stainless steel identification plate to the tank. The tank is in excellent condition, with no evidence of delamination or degradation of any type. The tank can be expected to have an extended service life of an additional 10 to 15 years, even though it is now 10 years old.

Both the tank materials and the connecting piping are composed of materials which are impervious to long term exposures to the wastewater components and the treatment chemicals

Periodic inspections(on a yearly basis) should be a standard practice, to determine the tanks condition and also the state of the piping connected to the tank(which is in a like new condition).

As described by its title the tank serves the purpose of containing any "overflows" beyond the capacity of the primary receiver tank. Both tanks are located inside their own secondary containment berm, which is equipped with liquid sensors, to detect spills of liquids into the secondary containment.

TANK NAME - CAUSTIC RINSE OVERFLOW TANK T 11 MANUF. - Red Ewald Co.

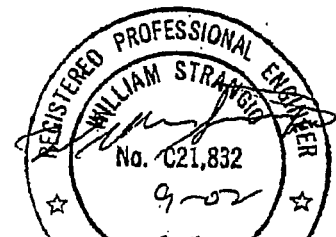
COMPANY SERIAL NUMBER - #20836

NOMINAL CAPACITY - 730 gallons

DIMENSIONS - 60" dia. X 60" H to rim

YEAR of MANUF. - 1989

DESCRIPTION - The tank is a laminated fiberglass and epoxy resin open top cylindrical vertical tank, which is equipped with four(4) holdown clips, which hold the tank directly to the coated concrete base slab. The nominal wall thickness is 1/2", with bottom edge banding of approximately 1" thickness where the holdown clips are located. The upper edge of the tank has a 2" wide rim, to which is attached a polypro sectional tank cover. An Influent waste overflow line enters the tank through the upper cover. There is one(1) 1 1/2" diameter line leaving the side of the tank near the bottom for connection to the transfer pumps. The tank exterior is painted grey and is labeled with colored labels of sufficient size. The manufacturer has attached a stainless steel identification plate to the tank. The



tank is in excellent condition, with no evidence of delamination or degradation of any type. The tank can be expected to have an extended service life of an additional 10 to 15 years, even though it is now 10 years old.

Both the tank materials and the connecting piping are composed of materials which are impervious to long term exposures to the wastewater components and the treatment chemicals

Periodic inspections (on a yearly basis) should be a standard practice, to determine the tanks condition and also the state of the piping connected to the tank (which is in a like new condition).

As described by its title the tank serves the purpose of containing any "overflows" beyond the capacity of the primary receiver tank. Both tanks are located inside their own secondary containment berm, which is equipped with liquid sensors, to detect spills of liquids into the secondary containment.



**UNIFIED PROGRAM CONSOLIDATED FORM
HAZARDOUS WASTE
ONSITE HAZARDOUS WASTE TREATMENT NOTIFICATION – UNIT PAGE**

(One page and attachments per unit)

Page 42 of 53

FACILITY ID#		1.	BUSINESS NAME (Same as FACILITY NAME or DBA – Doing Business As)	3.
			Lawrence Berkeley National Laboratory	

I. TREATMENT UNIT

UNIT ID# FTU 007	606.	UNIT TYPE/TIER	607.	NUMBER OF TANKS 4	608.	NUMBER OF CONTAINERS/ TREATMENT AREAS 4	609.
UNIT NAME Building 67 Molecular Foundry FTU	610.	<input type="checkbox"/> a. CESQT <input type="checkbox"/> b. CESW <input type="checkbox"/> c. CA <input checked="" type="checkbox"/> d. PBR <input type="checkbox"/> e. CEL		MONTHLY TREATMENT VOLUME 3450	611.	UNIT OF MEASURE <input type="checkbox"/> a. Pounds <input checked="" type="checkbox"/> b. Gallons	612.

SPECIFIC WASTE TYPE TREATED (narrative) 613.
Inorganic acid and alkaline wastes.

TREATMENT PROCESS DESCRIPTION (narrative) 614.
Neutralization by pH adjustment. For a detailed process description see, "Process Description, Collection and Treatment of Acidic and Alkaline Waste, Molecular Foundry Nanofabrication Facility, November 29, 2007."

(NOTE: For each treatment unit, complete and attach the appropriate Waste and Treatment Process Combinations page.)

II. BASIS FOR NOT NEEDING FEDERAL PERMIT (Check all that apply)

- | | | |
|---|---|------|
| <input type="checkbox"/> a. The treated waste is not a hazardous waste under federal law (California-only waste).
<input checked="" type="checkbox"/> b. Treated in waste water treatment units (tanks) and discharged to a publicly owned treatment works (POTW)/sewerage agency or under an NPDES permit.
<input checked="" type="checkbox"/> c. Treatment in elementary neutralization units.
<input type="checkbox"/> d. Treatment in a totally enclosed treatment facility.
<input type="checkbox"/> e. Federal conditionally exempt small quantity generator (generated 100 kg., approximately 27 gallons, or less of hazardous waste in a calendar month). | <input type="checkbox"/> f. Treatment in an accumulation tank or container within 90 days for over 1,000 kg./month generators and 180 or 270 days for generators of 100 to 1,000 kg./month.
<input type="checkbox"/> g. Recyclable materials are reclaimed to recover silver or other precious metals.
<input type="checkbox"/> h. Empty container rinsing and/or treatment.
<input type="checkbox"/> i. Other (specify below) | 615. |
|---|---|------|

III. RESIDUALS MANAGEMENT DESCRIPTION (Check all that apply)

- | | | |
|--|---|------|
| <input checked="" type="checkbox"/> a. Discharge non-hazardous aqueous waste to POTW or sewer.
<input type="checkbox"/> b. Discharge non-hazardous aqueous waste under a NPDES permit.
<input type="checkbox"/> c. Dispose of non-hazardous solid waste residues at an offsite location. | <div>Residual hazardous waste hauled offsite by a registered hauler.</div> <input type="checkbox"/> d. Offsite recycling
<input type="checkbox"/> e. Thermal treatment
<input type="checkbox"/> f. Disposal to land
<input type="checkbox"/> g. Further treatment
<input type="checkbox"/> h. Other method of disposal (describe below) | 616. |
|--|---|------|

SECONDARY CONTAINMENT INSTALLATION DATE (If required)

617.

Onsite Hazardous Waste Treatment Notification – Unit [(Formerly DTSC Form 1772A,B,C,D,L)]

Complete an Onsite Hazardous Waste Treatment Notification - Unit page and a Waste and Treatment Process Combinations page for each treatment unit operating at this facility. Commercial Laundries are not required to complete unit specific pages, provided that laundering is the only hazardous waste treatment activity conducted by the facility. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

1. FACILITY ID NUMBER - This space is for agency use only.
3. BUSINESS NAME - Enter the complete Facility Name.
606. UNIT ID NUMBER - Enter a unique number for each unit. All unit numbers must be clearly labeled on the plot plan/map.
607. UNIT TYPE / TIER - Check the appropriate box to indicate unit type under the Tiered Permitting program.
608. NUMBER OF TANKS - Enter the number of tanks used in the unit. ["Tank" means a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.]
609. NUMBER OF CONTAINERS/TREATMENT AREAS - Enter the number of containers/container treatment areas used in the unit. ["Container" means any device that is open or closed, and portable in which a material can be stored, handled, treated, transported, disposed of, or recycled.] "Treatment Area" is a location set aside and used to treat waste in containers.
610. UNIT NAME - Enter the name of the treatment unit. A treatment unit is defined as a tank, a container, or a combination of tanks or tank systems and/or containers located together that are used in sequence to treat or accumulate one or more compatible hazardous waste streams. The devices are either plumbed together or otherwise linked so as to form one system.
611. MONTHLY TREATMENT VOLUME - Enter the estimated monthly total volume of hazardous waste treated in this unit. If the volume fluctuates significantly by month, enter the maximum volume treated in any month.
612. UNIT OF MEASURE - Check a box to indicate whether the treatment volume unit of measure is pounds or gallons.
613. SPECIFIC WASTE TYPE TREATED - Describe the specific waste type(s) treated (e.g. If the waste qualifies as an aqueous waste with metals or organics, indicate the specific metals or organics).
614. TREATMENT PROCESS DESCRIPTION - Describe the treatment process(es) used. Indicate if the activities are seasonal or periodic.
615. BASIS FOR NOT NEEDING FEDERAL PERMIT - Check the reason(s) that best describe why your onsite treatment unit does not need a federal hazardous waste permit. You must indicate at least one reason to prove your eligibility for the onsite treatment tiers. If you are unsure how these exemptions apply to your operation, contact your Certified Unified Program Agency (CUPA), the DTSC Regional Office closest to you, the U.S. EPA Region IX RCRA Information Line at (415) 744-2074, or the U.S. EPA RCRA Hotline at (800) 424-9346. The eight most common reasons for not needing a federal permit are listed on this form. There is also a space to specify any other reason for exemption and a supporting regulatory citation. The following terms are defined in 40 CFR §260.10:
 - Wastewater Treatment Unit** - A device which: (1) is part of a wastewater treatment facility regulated under section 402 or 307(b) of the Clean Water Act, and (2) receives and treats or stores an influent wastewater that is a hazardous waste or that generates and accumulates a wastewater treatment sludge that is a hazardous waste or that treats or stores a wastewater treatment sludge which is a hazardous waste, and (3) meets the definition of tank or tank system.
 - Elementary Neutralization Unit** - A device which (1) is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic or they are listed only for this reason, and (2) meets the definition of tank, tank system, container, transport vehicle, or vessel.
 - Totally Enclosed Treatment Facility** - A facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment.
 - NPDES Permit** - A permit issued by a regional water board allowing discharge of waste to the environment under the National Pollutant Discharge Elimination System (NPDES).
616. RESIDUALS MANAGEMENT DESCRIPTION - Check the appropriate box(es) to describe how treatment residuals are managed. If box h. is checked, describe the "other" methods in the space provided.
617. SECONDARY CONTAINMENT INSTALLATION DATE - Enter the date the secondary containment was installed.

**UNIFIED PROGRAM CONSOLIDATED FORM
ONSITE TIERED PERMITTING
PERMIT BY RULE (PBR) PAGE
WASTE AND TREATMENT PROCESS COMBINATIONS**

(One page per treatment unit. Check all that apply)

UNIT ID# FTU 007

606.

Facility ID#

1.

Page 43 of 53

1. Aqueous wastes containing hexavalent chromium may be treated by the following process:
Reduction of hexavalent chromium to trivalent chromium with sodium bisulfite, sodium metabisulfite, sodium thiosulfate, ferrous sulfate, ferrous sulfide or sulfur dioxide provided
☐ a. both pH and addition of the reducing agent are automatically controlled.
2. Aqueous wastes containing metals listed in Title 22, CCR, Section 66261.24 (a)(2) and/or fluoride salts may be treated by the following technologies:
☐ a. pH adjustment or neutralization.
☐ b. Precipitation or crystallization.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Ion exchange.
☐ e. Reverse osmosis.
☐ f. Metallic replacement.
☐ g. Plating the metal onto an electrode.
☐ h. Electrodialysis
☐ i. Electrowinning or electrolytic recovery
☐ j. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ k. Evaporation.
☐ l. Adsorption
3. Aqueous wastes with total organic carbon less than 10% as measured by EPA Method 9060 and less than 1% total volatile organic compounds as measured by EPA Method 8240 may be treated by the following technologies:
☐ a. Phase separation by filtration, centrifugation or gravity settling, but excluding super critical fluid extraction.
☐ b. Adsorption.
☐ c. Distillation.
☐ d. Biological processes conducted in tanks or containers and utilizing naturally occurring microorganisms.
☐ e. Photodegradation using ultraviolet light, with or without the addition of hydrogen peroxide or ozone, provided the treatment is conducted in an enclosed system.
☐ f. Air stripping or steam stripping.
4. Sludges, dusts, solid metal objects and metal workings which contain or are contaminated with metals listed in Title 22, CCR, Section 66261.24 (a)(2) and/or fluoride salts may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Physical processes which change only the physical properties of the waste such as grinding, shredding, crushing or compacting.
☐ c. Drying to remove water.
☐ d. Separation based on differences in physical properties such as size, magnetism or density.
5. Alum, gypsum, lime, sulfur or phosphate sludges may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
- Wastes identified in Title 22, CCR, Section 66261.120, that meet the criteria and requirements for special waste classification in Section 66261.122 may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Screening to separate components based on size.
☐ e. Separation based on differences in physical properties such as size, magnetism or density.
7. Wastes, except asbestos, which have been classified by the Department as special wastes pursuant to Title 22, CCR, Section 66261.124, may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Drying to remove water.
☐ c. Phase separation by filtration, centrifugation or gravity settling.
☐ d. Magnetic separation.
8. Inorganic acid or alkaline wastes may be treated by the following technology:
☒ a. pH adjustment or neutralization.
9. Soils contaminated with metals listed in Title 22, CCR, Section 66261.24(a)(2), (Persistent and Bioaccumulative Toxic Substances) may be treated by the following technologies:
☐ a. Chemical stabilization using silicates and/or cementitious types of reactions.
☐ b. Screening to separate components based on size.
☐ c. Magnetic separation.
10. Used oil, unrefined oil waste, mixed oil, oil mixed with water and oil/water separation sludges may be treated by the following technologies:
☐ a. Phase separation by filtration, centrifugation or gravity settling, but excluding super critical fluid extraction.
☐ b. Distillation.
☐ c. Neutralization.
☐ d. Separation based on differences in physical properties such as size, magnetism or density.
☐ e. Reverse osmosis.
☐ f. Biological processes conducted in tanks or containers and utilizing naturally occurring microorganisms.
11. Containers of 110 gallons or less capacity which are not constructed of wood, paper, cardboard, fabric, or any other similar absorptive material, which have been emptied as specified in Title 40 of the Code of Federal Regulations, section 261.7 or inner liners removed from empty containers that once held hazardous waste or hazardous material and which are not excluded from regulation may be treated by the following technologies provided the treated containers and rinseate are managed in compliance with applicable requirements.
☐ a. Rinsing with a suitable liquid capable of dissolving or removing the hazardous constituents which the container held.
☐ b. Physical processes such as crushing, shredding, grinding or puncturing, that change only the physical properties of the container or inner liner, provided the container or inner liner is first rinsed and the rinseate is removed from the container or inner liner.
12. Multi-component resins may be treated by the following process:
☐ a. Mixing the resin components in accordance with the manufacturer's instructions.

A waste stream technology combination certified by the Department pursuant to Section 25200.1.5 of the Health and Safety Code as appropriate for authorization under Permit by Rule.

☐ Certified Technology Number: _____

Waste and Treatment Process Combinations Form PBR Instructions (Formerly DTSC Form 1772D)

This Waste and Treatment Process Combinations page lists those waste and treatment combinations certified by the Department of Toxic Substances Control (DTSC) pursuant to Health and Safety Code (H&SC) §25200.1.5 for authorization under the Permit by Rule (PBR) tier. (Note: Reactive and extremely hazardous wastes are not allowed to be treated under this tier.)

Complete a separate Waste and Treatment Process Combinations page for each unit. Please number all pages of your submittal. (Note: Numbering of these instructions follows the UPCF data element numbers on the form.)

606. UNIT ID NUMBER - Enter the unit ID number (same as item 606 from the Onsite Hazardous Waste Treatment Notification - Unit form).

1. FACILITY ID NUMBER - This space is for agency use only.

630. WASTE AND TREATMENT PROCESS COMBINATIONS (PBR) - Use this page only for a PBR unit. Check the appropriate boxes to indicate the waste and treatment process(es) that pertain to the unit. If the process is a technology certified by DTSC, enter the Certified Technology Number (Cert. #). Certified technologies appropriate for authorization, and the eligible tiers, are listed below.

CERTIFIED TECHNOLOGIES

DTSC is authorized to certify hazardous waste technologies. Appropriate certified technologies may be eligible for the CE, CA or PBR onsite treatment tiers. As of April 1, 1999, there is one certified technology for these tiers. The certification is for aldehyde treatment processes and is eligible for the CESW tier. The approved technology is:

Technology	Vendor	Cert. #	Effective Date	Tier	Description
Neutralex	Scigen 333 East Gardena Blvd. Gardena, CA 90248	97-01-0024	629/97 (expires 6/29/00)	CESW	Batch treatment for 10 percent Formalin generated by medical, educational, and laboratory facilities. Chemically treats in a provided 8 liter vessel. After testing, allows for disposal to sanitary sewer.

A copy of published Certification Statements and additional updates may be obtained by contacting DTSC at (916) 322-3670 or from the Cal/EPA on-line Bulletin Board via modem at (916) 322-5041.

Process Description
Collection and Treatment of Acidic and Alkaline Waste
Molecular Foundry Nanofabrication Facility
November 29, 2007

The waste collection and treatment system for the Molecular Foundry will process acid and alkaline waste from the wet process stations located on the second level, Nanofabrication Facility. In general, the wet process stations are used for etching and rinsing wafers. Etching removes the portions of the wafer that are not needed for that application. Wafers will vary in size from 4" to 8" in diameter, and multiple wafers may be handled in wafer "carriers" that stack the wafers vertically. The wafers come to the wet process station after having been coated, exposed and developed. Etching consists of placing the wafer into the container (tank, beaker or watch glass) of etchant, allowing the etchant to erode the substrate, and then stopping the operation by rinsing in water. Rinsing consists of filling the rinse tank with water, draining it, and refilling and draining multiple times, each time the rinse water contains less etchant (typically three cycles are used).

Periodically the etchant will need to be changed, which consists of removing the acid or alkaline etchant from the tank/beaker/watch glass using a water aspirator, and then refilling with fresh etchant.

Initially there will be two wet process stations connected to the collection and treatment system – one in which acidic etchants are used, and one in which alkaline etchants are used. The acidic etchants station contains two tanks in which the etchant is placed, and two separate rinse tanks. The alkaline etchants station contains one tank in which the etchant is placed, and one separate rinse tank. In addition, wet process stations include open benchtops in which small procedures may take place in beaker or watch-glass size quantities, and has an open lab sink as well.

Acidic etchants that may be used include but are not limited to the following:

- Hydrochloric acid (concentrated) (pKa = -7)
- Hydrofluoric acid (concentrated or 10% as Buffered Oxide Etchant) (pKa = 3.2)
- Nitric acid (concentrated) (pKa = -2)
- Phosphoric acid (concentrated) (pKa = 2.15)
- Piranha etch [3:1 concentrated sulfuric acid : hydrogen peroxide (typically 30%) solution]

Alkaline etchants that may be used include but are not limited to the following:

- Potassium hydroxide (approximately 40%, ~7.13 M) (pKb = <<0)

Details

Etch tanks, beakers and watch glasses are emptied using a water aspirator connected to a "stinger". The stinger is inserted into the container, and the vacuum created by the water aspirator lifts the etchant from the container, dissolves it into the running water, and sends the diluted etchant to the collection system.

The dilution ratio is a minimum 6:1 water:etchant, and can be configured higher¹. Fresh water flush follows the etchant down the collection system.

Water rinses from the rinse cycle are sent directly to the collection system from a drain at the bottom of the rinse tank.

All connections to the collection system are controlled by valves. The aspiration, flush, and rinse cycles will be automated by controllers in the wet process stations, and the wet process stations will be interlocked so that only one station can deliver acid or alkaline waste to the collection system at a time. This will assure that the collection system has been thoroughly flushed so that potentially incompatible reactions do not occur within the collection system. In addition, these controllers will be programmed to prevent any tank dump or rinse cycle if the high level switch on the waste treatment system influent surge tank is activated.

Quantities and volumes represent maximum volumes:

- Volume of etch tank with a rinse insert: 9.5" D x 7.25" L x 8" W = .319 cubic feet = 2.39 gallons.
- Aspiration: assume water:etchant ratio of 6:1
- Post-aspiration flush: 3 pulses of 30 seconds @ 2.0 gpm, each followed by 40 seconds gravity flow, total volume = 1.5 minutes x 2.0 gpm = 3.0 gallons.
- Rinse: assume rinse tank size identical to etch tank, 3 rinses @ 2.39 gal/rinse = 7.2 gal
- Etchant dumps: assume 2/day acid, 1/day alkaline per bench, plus miscellaneous beakers of smaller quantities
- Rinse cycles: assume 4/day per bench (multiple batches can use the same etchant)
- Sink water: assume short duration, small quantity, de minimus relative to the programmed process flow.

Daily Average flow:

Acid: 2.39 gal x 7 (aspiration dilution) x 2/day x 1 bench =	33.5 gal
Alkali: 2.39 gal x 7 (aspiration dilution) x 1/day x 1 bench =	16.7 gal
Flush: (3.0 gal x 2/day) + (3.0 gal x 1/day) =	9.0 gal
Rinse: 7.2 gal x 4/day/bench x 2 benches =	<u>57.4 gal</u>
Total	116.6 gal

Average inflow (8-hour day) = 116.6 gal/480 min = 0.243 gpm

Hourly Peak Flow: Assume that in the peak hour the following occurs:

Two acid etches, each followed by a rinse cycle	
7.2 gal x 2 =	14.4 gal
One acid tank dump followed by a flush cycle	
(2.39 x 7) + 3.0	19.7 gal
One alkali etch followed by a rinse cycle	

¹ The 6:1 ratio has been assumed in these calculations as it is conservative. In all cases analyzed, a higher ratio will result in safer conditions.

$$\begin{array}{rcl}
 7.2 \times 1 & = & 7.2 \text{ gal} \\
 \text{One alkali tank dump followed by a flush cycle} & & \\
 (2.39 \times 7) + 3.0 & & \underline{19.7 \text{ gal}} \\
 & & 61.0 \text{ gal}
 \end{array}$$

Hourly process capability: 60 min x 5 gpm = 300 gal exceeds peak inflow.

Influent pH

Influent pH will be the pH of the aspirated tank dump, considering the flush. Minimum influent pH will be for hydrochloric and nitric acids (since $pK_a < 0$, assume complete dissociation; phosphoric and hydrofluoric (especially buffered HF) are weaker acids). Maximum influent pH will be for 40% KOH solution.

Nitric: $\text{HNO}_3 \rightarrow \text{H}^+ + \text{NO}_3^-$ Reagent grade nitric acid is approx. 70% w/v

- o $D = 1.40 \text{ g/ml}$
- o $1.40 \text{ g/ml} \times 0.70 = 0.980 \text{ g HNO}_3/\text{ml}$
- o $0.980 \text{ g/ml} \times 1000 \text{ ml/L} \times 1 \text{ mole}/63.01 \text{ g} = 15.56 \text{ mole/L}$
- o At 6:1 dilution, conc = 2.22 mol/L (Note: this translates to 10 % w/v)
- o Assume $[\text{HCl}] \sim [\text{H}^+]$ and $\text{pH} = -\log[\text{H}^+]$
- o $[\text{H}^+] = 2.2$, $\text{pH} \sim 0$

Hydrochloric: $\text{HCl} \rightarrow \text{H}^+ + \text{Cl}^-$ Reagent grade hydrochloric acid is approx. 37% w/v

- o $D = 1.19 \text{ g/ml}$
- o $1.19 \text{ g/ml} \times 0.37 = 0.440 \text{ g HCl/ml}$
- o $0.440 \text{ g/ml} \times 1000 \text{ ml/L} \times 1 \text{ mole}/36.465 \text{ g} = 12.07 \text{ mol/L}$
- o At 6:1 dilution, conc = 1.7 mole/L
- o Assume $[\text{HCl}] \sim [\text{H}^+]$ and $\text{pH} = -\log[\text{H}^+]$
- o $[\text{H}^+] = 1.7$, $\text{pH} \sim 0$

Potassium Hydroxide: $\text{KOH} \rightarrow \text{K}^+ + \text{OH}^-$

- o 40% KOH = 400 g KOH/L
- o $400 \text{ g/L} \times 1 \text{ mole}/56.095 \text{ g} = 7.131 \text{ mol/L}$
- o At 6:1 dilution, conc = 1.02 mole/L
- o Assume $[\text{KOH}] \sim [\text{OH}^-]$, $\text{pOH} = -\log[\text{OH}^-]$ and $\text{pH} = 14 - \text{pOH}$
- o $[\text{OH}^-] = 1.02$, $\text{pOH} \sim 0$, $\text{pH} \sim 14$

Temperature limitations

Influent temperature

Worst case is Pirhana etch @ 120°C

- o Assume etch bath = 120°C = 393°K = 248°F
- o Assume aspiration water = 13°C = 286°K = 55°F
- o Average temperature is $[(6 \times 286) + 393]/7 = 301^\circ\text{K} = 28.3^\circ\text{C} = \underline{83^\circ\text{F}}$
- o Assume water flush = 13°C = 286°K = 55°F

Temperature rise in influent surge tank

The worst case reasonable scenario is a discharge of Piranha solution ($\text{H}_2\text{SO}_4/\text{H}_2\text{O}_2$ 3:1 acid) with two alkali (assume KOH) discharges and three flush cycles (flush after each discharge). A second but more likely scenario is a discharge of two HCL solutions and one discharge of a KOH solution with three flush cycles (flush after each discharge).

Assumptions that have been made in these calculations:

- The influent surge tank contains only product and flush water, no rinse (dilute) water;
 - The influent surge tank begins at a temperature of approx. 72°F (22°C, 295°K);
 - There is no heat lost through the wall of the influent surge tank during any neutralization reaction; all heat generated is absorbed by the liquid;
 - The molar enthalpy of neutralization for a strong acid is -58.1 kJ/mole of hydrogen ion and 1kcal = 4.184kJ; and
 - The specific heat of all liquids is assumed to be the same as pure water, ie, 1°C-L/kcal. The difference in specific heat between pure water and the dilute solutions considered here is de minimus.
1. One discharge of Piranha solution ($\text{H}_2\text{SO}_4/\text{H}_2\text{O}_2$ 3:1 acid) with two alkali (assume KOH) discharges and three flush cycles (flush after each discharge).
- Commercial H_2SO_4 is 18M (or 36N); a 3:1 mixture equals 13.5 M H_2SO_4 . When discharged at 6:1 aspiration, H_2SO_4 concentration equals 1.93 M.
 - 16.7 gal (63.2 L) of 1.93 M $\text{H}_2\text{SO}_4 \rightarrow 122$ moles $\text{H}_2\text{SO}_4 \rightarrow 244$ moles H^+
 - 33.5 gal (126.8 L) of 1.02M KOH $\rightarrow 129$ moles KOH
 - Heat of neutralization is limited by 129 moles of KOH; 57.5 moles of H_2SO_4 remain unneutralized
 - Followed by 3.0 gal (11.4 L) clean water flush/discharge = 34.1 L
 - 129 moles x -58.1 kJ/mole x 1 kcal/4.184 kJ = 1791 kcal liberated
 - Resultant mixture temperature without consideration of reaction heat is
 - $[(63.2 \text{ L} \times 301^\circ\text{K}) + (126.8 \text{ L} \times 295^\circ\text{K}) + (34.1 \text{ L} \times 286^\circ\text{K})] / 224.1 \text{ L} = 295^\circ\text{K} = 71.9^\circ\text{F}$
 - Reaction heat results in a temperature rise of
 - $1791 \text{ kcal} \times 1^\circ\text{C-L/kcal} \times 1.8^\circ\text{F}/^\circ\text{C} \times 1/224.1 \text{ L} = \underline{17.0^\circ\text{F}}$

This scenario would result in a net concentration of unneutralized H_2SO_4 acid of 0.26 moles/L at a temperature of approximately $(71.9+17.0) = 88.9^\circ\text{F}$. Per the IPLEX Chemical Resistance Guide, polypropylene (surge tank walls are 1/2" polypropylene) shows high resistance at 140°F to 37% (12M) hydrochloric acid, 85% (14.7M) phosphoric acid, 10% (1.9M) sulfuric acid, and limited resistance to 20% (4.4M) nitric acid. Resistance to the much more dilute nitric acid is anticipated to be superior to that of the more concentrated form (this is confirmed by other chemical resistance charts). The chemical resistance of polypropylene exceeds that required by the resulting unneutralized H_2SO_4 acid.


2. The more typical scenario is two discharges of HCL solutions and one discharge of a KOH solution with three flush cycles (flush after each discharge).
- 126.8 L of 2M HCl → 253.6 moles HCl
 - 63.2 L of 1.02M KOH → 64.5 moles KOH
 - Heat of neutralization is limited by 64.5 moles of KOH; 189.1 moles of HCl remain unneutralized
 - Followed by 3.0 gal (11.4 L) clean water flush/discharge = 34.1 L
 - 64.5 moles x -58.1 kJ/moles x 1 kcal/4.184 kJ = 896 kcal liberated
 - Resultant mixture temperature without consideration of reaction heat is
 - $[(126.8 \times 295^{\circ}\text{K}) + (63.2 \times 295^{\circ}\text{K}) + (34.1 \times 286^{\circ}\text{K})]/224.1 = 294^{\circ}\text{K} = 68.9^{\circ}\text{F}$
 - Reaction heat results in a temperature rise of
 - $896 \text{ kcal} \times 1^{\circ}\text{C-L/kcal} \times 1.8^{\circ}\text{F/^{\circ}C} \times 1/224.1 \text{ L} = 7.2^{\circ}\text{F}$

This scenario would result in a net concentration of unneutralized HCl acid of 0.84 moles/L at a temperature of approximately (68.9+7.2)=76.1°F. Per the IPLEX Chemical Resistance Guide, polypropylene shows high resistance at 140°F to 37% (12M) hydrochloric acid.

Reference:	John Seabury P.E. CIH, "Preliminary Process Description, Collection and Treatment of Acidic and Alkaline Waste, Molecular Foundry Nanofabrication Facility V.1.6 August 23, 2005"
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5217 SURGE AND NEUTRALIZER

W2 SYSTEMS
WATER & WASTEWATER TREATMENT SYSTEMS



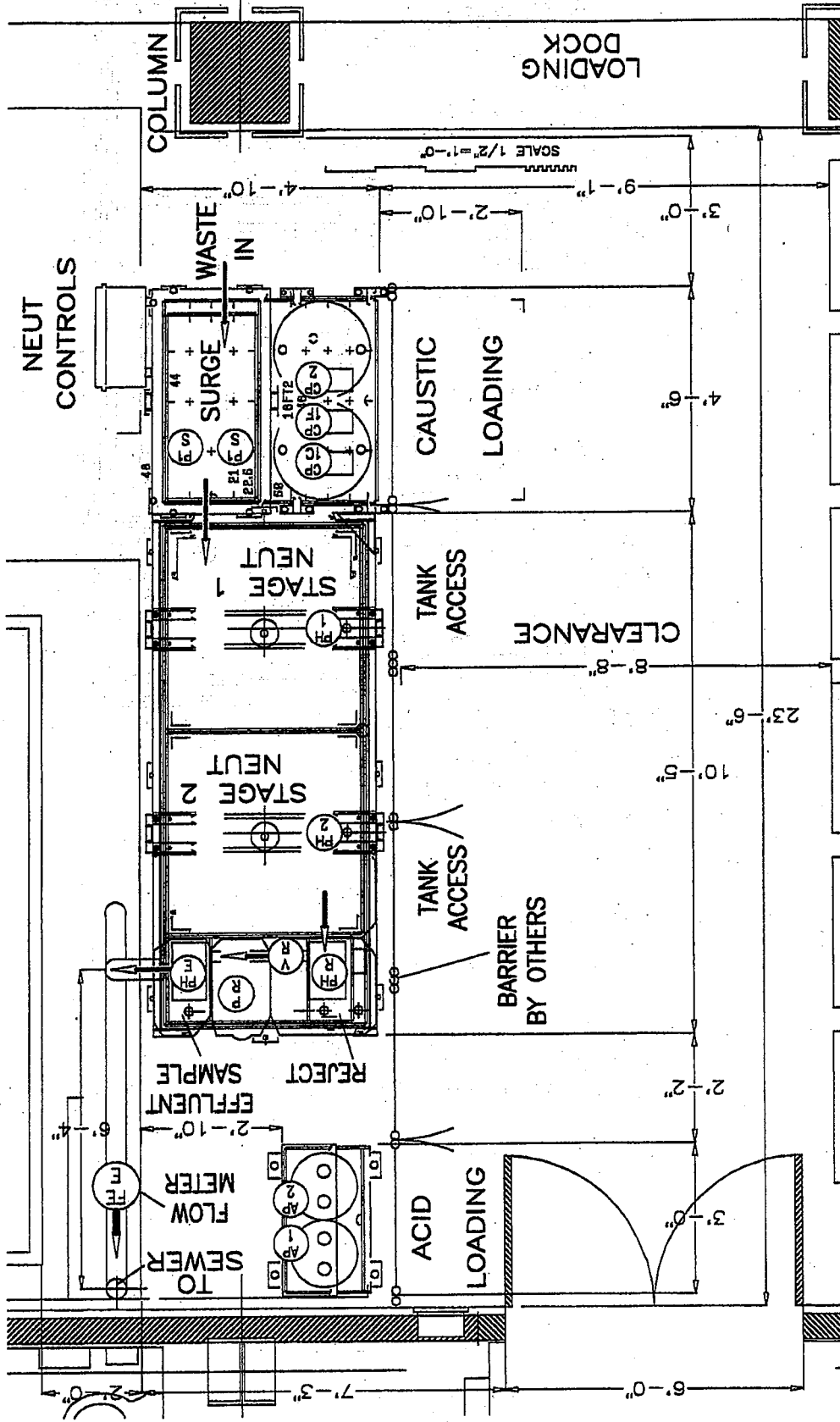
WASTEWATER NEUTRALIZER
SITE PLAN
2006.07.05
B.217N.03.2

CLIENT
LB LABS

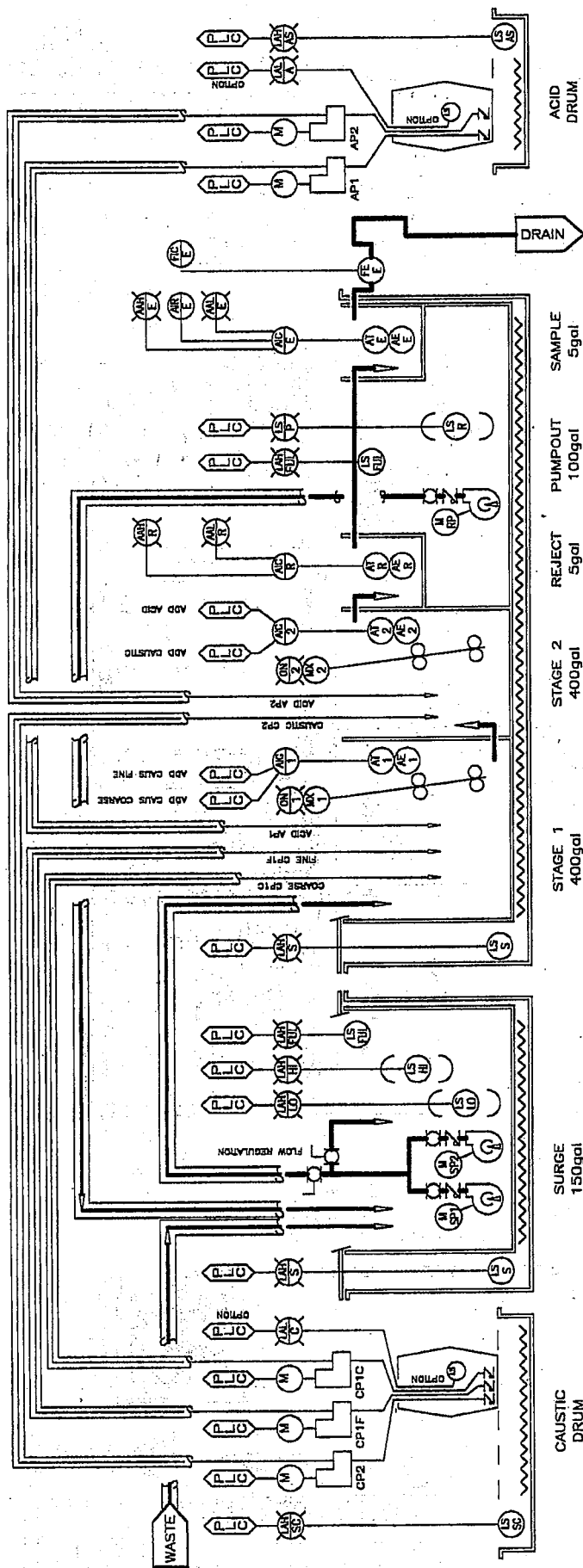
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DESCRIPTION
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B 2172S1-F-DWG



5217 SURGE AND NEUTRALIZER



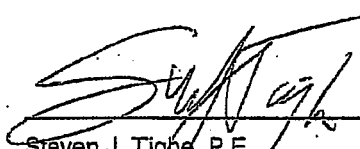
 W2 SYSTEMS WATER & WASTEWATER TREATMENT SYSTEMS RES/ENGINEER	A 2171NPI.DWG 2006.04.27 BY 1044 MATHI DAY	CLIENT	2006.04.27	2 STAGE NEUTRALIZER PIPING & INSTRUMENTS LAWRENCE BERKELEY	B.217N.01.1	2006.04.27	A
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ENSR | AECOM

**Hazardous Waste Tank Certification – FTU-007
Nanofabrication Wastewater Treatment System
Lawrence Berkeley National Laboratory
Berkeley, California**

Summary: The caustic wastewater treatment system for the Nanofabrication Laboratory waste (designated FTU-007) operated by Lawrence Berkeley National Laboratory (the Berkeley Lab) in Berkeley, California, meets the applicable tank standards for storage and elementary neutralization of hazardous wastes per Title 22 of the California Code of Regulations, sections 66265.190 et seq.

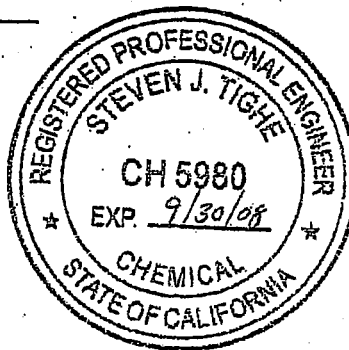
I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment for knowing violations.


Steven J. Tighe, P.E.

Chemical Engineer No. CH5980

Senior Project Manager

ENSR Corporation

Date: 7/31/07

Certification Valid Through: July 31, 2012

Lawrence Berkeley National Laboratory Prior Enforcement History

Docket #: HWCA20040523

Effective date of Consent Order: March 13, 2007

Agency: State of California

Environmental Protection Agency

Department of Toxic Substances Control

700 Heinz Ave.

Berkeley, CA 94710

Summary:

On March 13, 2007, Lawrence Berkeley National Laboratory (Berkeley Lab) received an administrative penalty of \$28,000 from the State of California's Department of Toxic Substances Control for hazardous waste violations that resulted from inspections on April 22, 2003, March 16, 2004, and June 5, 2005. Specifically, the Berkeley Lab was fined for transporting hazardous materials to an offsite warehouse, which is not authorized to accept hazardous waste. The Berkeley Lab was also fined for holding hazardous waste in a Satellite Accumulation Area for more than one year and for receiving waste at the Berkeley Lab Hazardous Waste Handling Facility from an offsite location.

Notice of Violation#: A50801

Effective date of Compliance and Settlement Agreement: June 30, 2009

Agency: State of California

Bay Area Air Quality District

939 Ellis Street

San Francisco, CA 94109

Summary:

On June 30, 2009, Lawrence Berkeley National Laboratory (Berkeley Lab) received an administrative penalty of \$300 from the State of California's Bay Area Air Quality Management District for failure to meet the April 1, 2009 deadline for the Phase II EVR Upgrade in violation of District Regulation 8-7-302. On February 11, 2009, the Berkeley Lab applied for an exemption to operate exempt from Phase II vapor recovery requirements. This exemption was approved on March 6, 2009 by the Bay Area Air Quality District. However, existing Phase II vapor recovery equipment had to be replaced with non-vapor recovery equipment by the April 1, 2009 deadline and the Berkeley Lab was unable to have the non-vapor recovery equipment installed by this date and subsequently entered into this compliance agreement.

STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL

In the Matter of:

The University of California -
Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley, California 94720

Respondent.

Docket HWCA 20040523

CONSENT ORDER

Health and Safety Code
Section 25187

1. INTRODUCTION

1.1. Parties. The California Department of Toxic Substances Control (Department) and The University of California - Lawrence Berkeley National Laboratory (Respondent) enter into this Consent Order (Order) and agree as follows:

1.2. Site. Respondent generates, handles, treats, stores, and/or disposes of hazardous waste at the following site: 1 Cyclotron Road, Berkeley, California 94720 (Site).¹

1.3. Inspection. The Department inspected the Site on April 26, 2003, March 16, 2004, and June 29, 2005.

1.4. Authorization Status. The Department authorized Respondent to manage hazardous waste by a Hazardous Waste Facility Permit (HWFP) issued in May, 1993. Respondent timely filed its application for renewal. As required by regulation, the

¹ Respondent also operates at 2700 7th Street, Berkeley, California 94710 (LBNL-7th). The Respondent does not have a permit, certificate, registration, or interim status document to handle, treat, store and/or dispose of hazardous waste at LBNL-7th. Respondent's activities at LBNL-7th are limited to that of a hazardous waste generator.



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955

OFFICE OF DISTRICT COUNSEL

Phone: (415) 749-4920

Fax: (415) 749-5103

July 13, 2009

Ned Borglin
Environment, Health & Safety Division
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 85B0198
Berkeley, CA 94720

Re: Phase II EVR Upgrade Compliance Agreement

Dear Ned Borglin:

Enclosed please find a copy of the fully executed Compliance and Settlement Agreement between the Bay Area Air Quality Management District and you providing you an extension of the deadline to complete your installation of the Phase II enhanced vapor recovery (EVR) system at your facility.

Also enclosed is the notice of violation issued by the District for not having met the April 1, 2009 deadline, in violation of District Regulation 8-7-302.1. The District has received and appreciates your timely submission of your civil monetary penalty payment in full settlement of the violation.

We are also enclosing for your information a copy of a blank District-approved form for the monthly report that you must fill out and submit each month to keep the District apprised of your progress toward completion of the upgrade. Paragraph 5 of your Agreement specifies the deadline to submit your first monthly report. We suggest you make copies of this blank form for use over the duration of your Agreement. You may also download additional copies of the form at:

http://www.baaqmd.gov/enf/evr_phase_ii_monthly_progress_report_4-15-09.pdf.

Thank you for your cooperation and efforts to complete this important project.

Very truly yours,

Mutual Settlement Staff
Legal Division

Enclosures

Spare the Air

The Air District is a Certified Green Business

Printed using soy-based inks on 100% post-consumer recycled content paper



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06-29-09P12:08 RCVD

**COMPLIANCE AND SETTLEMENT AGREEMENT
BETWEEN
THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT
AND
THE UNIVERSITY OF CALIFORNIA, AS MANAGEMENT AND OPERATING
CONTRACTOR FOR LAWRENCE BERKELEY NATIONAL LABORATORY**

This Compliance and Settlement Agreement (the "Agreement") is entered into as of the date of execution by and between the University of California, as management and operating contractor for the Lawrence Berkeley National Laboratory ("UC LBNL") and the BAY AREA AIR QUALITY MANAGEMENT DISTRICT ("DISTRICT"), hereinafter collectively referred to as the "Parties."

RECITALS

WHEREAS, the DISTRICT is the regional agency with primary responsibility for the control of air pollution from stationary sources, such as gasoline dispensing facilities ("GDFs"), in the San Francisco Bay Area air basin; and

WHEREAS, pursuant to its responsibility, the DISTRICT issues permits to operate GDFs and regulates GDFs located within the DISTRICT's jurisdiction; and

WHEREAS, GDFs are a source of volatile organic compounds ("VOCs") in the form of gasoline vapors; and

WHEREAS, gasoline contains over two hundred hydrocarbon compounds, one of which is benzene, a known carcinogen; and

WHEREAS, VOCs are organic compounds that evaporate quickly into the atmosphere and that, reacting with nitrogen oxides (NOx) in sunlight, create ground level ozone; and

WHEREAS, ground level ozone is the primary component of photochemical smog, and smog aggravates respiratory diseases, reduces visibility, causes eye irritation, and damages vegetation; and

WHEREAS, according to the United States Environmental Protection Agency ("EPA"), "[e]xposure to ozone for 6 to 7 hours, even at relatively low concentrations, significantly reduces lung function and induces respiratory inflammation in normal, healthy people during periods of moderate exercise," (EPA, "Ozone (O3)," AIRTrends 1995 Summary, updated October 13, 2006); and

WHEREAS, UC LBNL, operates a GDF located at One Cyclotron Road, Berkeley, California, Site No. C6134 ("Facility"); and

WHEREAS, the Facility includes one 10,000-gallon underground storage tank and one dispensing nozzle and has an annual gasoline throughput of less than six hundred thousand gallons; and

Lawrence Berkeley National Laboratory

Permit by Rule Annual Report

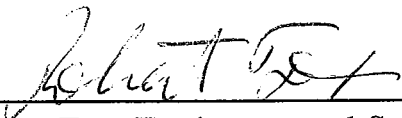
for

Building 67 FTU 007

Building 77 FTU 006

Building 25 FTU 002

Calendar Year 2009

Prepared by: 
Robert Fox, Environmental Specialist,
EH&S Division

Date: 2/17/10

Introduction:

On June 28, 2005, the City of Berkeley requested that the Lawrence Berkeley National Laboratory (Berkeley Lab) supply a report for its two Permit by Rule fixed treatment units with the annual Hazardous Materials Business Plan submission. This was the first request that the Berkeley Lab had received from the City of Berkeley to supply a Permit by Rule report as described in California Code of Regulations, Title 22, Section 67450.3(c)(10). According to this section of Code, this report is only required when specifically requested by the CUPA.

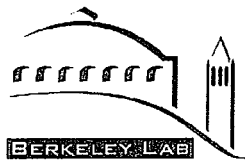
Below is the reporting information for three Permit by Rule Fixed Treatment Units (FTU) for FTUs located at Building 77, Building 25, and a new FTU at Building 67. The Building 67 FTU came on line in December 2008.

22 CCR 67450.3(c)(10)(A) – Serial numbers of FTUs:	Building 67, FTU 007; Building 77, FTU 006; and Building 25, FTU 002
22 CCR 67450.3(c)(10)(B) – Mailing Address:	Lawrence Berkeley National Laboratory One Cyclotron Road, Mail Stop 85B0198 Berkeley, CA 94720 Attention: Mr. Robert Fox
22 CCR 67450.3(c)(10)(C) – Name, title & telephone number of each FTU contact:	Building 67, FTU 007 Contact: Erin Wood, Nanofabrication Facility Clean Room Technician, (510) 486-5907 Building 77, FTU 006 Contact: Ed Tully, Ultra High Vacuum Cleaning Facility Supervisor, (510) 486-5907 Building 25, FTU 002 Contact: Ed Tully, Ultra High Vacuum Cleaning Facility Supervisor, (510) 486-5907
22 CCR 67450.3(c)(10)(D) – Name and address of facility:	Lawrence Berkeley National Laboratory One Cyclotron Road Berkeley, CA 94720
22 CCR 67450.3(c)(10)(E) – Facility ID number:	US EPA ID Number: CA 4890008986

<p>22 CCR 67450.3(c)(10)(F)- Number of days each FTU was operated:</p>	<p>Building 67, FTU 007 Operated 83 days in calendar year 2009.</p> <p>Building 77, FTU 006 Operated 74 days in calendar year 2009.</p> <p>Building 25, FTU 002 Operated 6days in calendar year 2009.</p>
<p>22 CCR 67450.3(c)(10)(G) – Quantity of hazardous waste treated by each FTU:</p>	<p>Building 67, FTU 007 4,364 gallons of aqueous acidic or alkaline waste were treated in calendar year 2009.</p> <p>Building 77, FTU 006 21,461 gallons of aqueous acidic waste containing metals and aqueous alkaline waste were treated in calendar year 2009.</p> <p>Building 25, FTU 002 3,284 gallons of aqueous acidic waste containing metals were treated in calendar year 2009.</p>
<p>22 CCR 67450.3(c)(10)(H) – The composition and hazardous characteristics of the influent hazardous wastes:</p>	<p>Building 67, FTU 007 Aqueous inorganic acid and alkaline wastes hazardous due to pH.</p> <p>Building 77, FTU 006 Aqueous waste containing metals listed in 22CCR 66261.24(a)(2), hazardous due to metals content and pH.</p> <p>Building 25, FTU 002 Aqueous waste containing metals listed in 22CCR 66261.24(a)(2), hazardous due to metals content and pH.</p>
<p>22 CCR 67450.3(c)(10)(I) – The treatment method(s) used for each hazardous waste treated by each FTU:</p>	<p>Building 67, FTU 007 The treatment method used includes: neutralization by pH adjustment.</p> <p>Building 77, FTU 006 The treatment methods used include: metals precipitation, pH adjustment, sludge dewatering, and sludge drying.</p> <p>Building 25, FTU 002 The treatment methods used include: metals precipitation, pH adjustment, and sludge dewatering.</p>

<p>22 CCR 67450.3(c)(10)(J) – The quantity, composition and hazardous characteristic(s) of any treatment effluent or residual discharged from each FTU to a POTW:</p>	<p>Building 67, FTU 007 4,364 gallons of aqueous acidic or alkaline waste were treated in calendar year 2009.</p> <p>Building 77, FTU 006 21,461 gallons of aqueous acidic waste containing metals and aqueous alkaline waste were treated in calendar year 2009.</p> <p>Building 25, FTU 002 3,284 gallons of aqueous acidic waste containing metals were treated in calendar year 2009.</p> <p>Note: All discharges met East Bay Municipal Utility District permit discharge limits.</p>
<p>22 CCR 67450.3(c)(10)(K) - The quantity, composition and hazardous characteristic(s) and disposition of any treatment effluent or residual that was not discharged to a POTW:</p>	<p>Building 67, FTU All effluent was discharged to the POTW, East Bay Municipal Utility District.</p> <p>Building 77, FTU 006 567.75 liters of unused GW18A Flocculant from Flocculant Feed Tank (liquid). (reference: Container #C160919, #C160920, #C160921; HWHF receipt date: 7/24/09)(Changed to new flocculant.)</p> <p>Building 25, FTU 002 9.53 Kg – dewatered sludge containing metals. (reference: Container # C164591, HWHF receipt date: 12/9/09) 9.80 Kg – filter bags and tubes with traces of heavy metals. (reference: Container #C156666, HWHF receipt date: 2/11/09)</p>

717 Potter Street



February 24, 2010
DIR-10-009

Mr. Nabil Al-Hadithy
City of Berkeley
Toxics Management Division
2118 Milvia Street
Berkeley, CA 94704

Dear Mr. Al-Hadithy:

We are enclosing our annual submittal of Lawrence Berkeley National Laboratory's (LBNL's) "Hazardous Materials Business Plan" to cover activities in the leased space at 717 Potter Street (Building 977). LBNL occupies approximately 75% of the assigned space (~72,000 square feet) within Building 977 consisting of research laboratories and support space.

Please note the following with respect to the enclosed documents:

LBNL is a federal facility owned by the Department of Energy (DOE). In certain areas of environmental regulation, Congress has directed federal facilities to comply with state and local requirements and pay reasonable service charges. In the area of hazardous materials planning and reporting, however, while DOE facilities must comply with federal Emergency Planning and Community Right-to-Know Act (EPCRA) requirements pursuant to an Executive Order, no waiver of federal sovereign immunity from state and local regulation has occurred. Despite the lack of a sovereign immunity waiver, LBNL voluntarily complies with state requirements for hazardous materials planning and reporting. The attached report provides the information required by the state regulations.

- (1) Hazardous materials are reported if they meet or exceed state thresholds, aggregated by building.
- (2) Radioactive materials reporting is consistent with state requirements. State requirements provide for reporting of radioactive materials that are handled in quantities for which an emergency plan would be required according to the Nuclear Regulatory Commission (NRC) or the State of California, Department of Health Services (DHS) regulations. There are no radioactive materials at LBNL for which such an emergency plan would be required. All radioactive materials, including those in mixed waste, have been considered for this reporting category.
- (3) Hazardous waste reporting also is consistent with state requirements. Waste quantities located at the Hazardous Waste Handling facility have been aggregated, and quantities exceeding the state threshold are reported. Volumes of mixed waste have been considered for this reporting category due to their hazardous waste component.

Mr. Nabil Al-Hadithy

Page 2

February 24, 2010

- (4) Appendix A and Appendix B are the only two forms required by the California Code of Regulations, Title 19. Additional information included in the submittal is being presented voluntarily.

We trust that this information will assist your office in serving the needs of the community regarding hazardous material disclosure information.

Please feel free to contact Jack Salazar (510) 486-6571 directly should you have any questions or wish to discuss this matter further.

Sincerely,

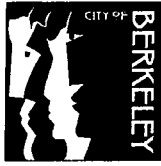


Douglas M. Fleming
Division Director
Environment, Health and Safety Division

DMF/JJS/CLF

Enclosures

cc: Kim Abbott, U.S. Department of Energy, Berkeley Site Office
Dan Lunsford, Berkeley Lab Emergency Management
Ron Pauer, Berkeley Lab Environmental Services Group Leader
Paul Blodgett, Berkeley Lab Health and Safety Deputy
Nancy Rothermich, Berkeley Lab Waste Management Group Leader
Gary Piermattei, Fire Prevention Program



Planning and Development Department
Toxics Management Division

SPECIAL HAZARDS REGISTRATION

According to BMC Title 15, the following special hazards require registration and compliance with the ordinance. For copies of the compliance requirements, please contact your inspector for a copy of the ordinance.

Facility Name:	E.O. Lawrence Berkeley National Laboratory – Offsite Bldg. 977	
Facility Address:	717 Potter Street, Berkeley, CA 94710	Phone: 510-486-5099

I. Etiological Agents Disclosure:

Etiological agents can be microorganisms which cause disease. The BMC defines an etiologic agent as any of the following:

- 1 An infectious substance, which is any viable microorganism, or its toxin, which causes or may cause disease in humans or animals, and includes those agents listed in 42 CFR Section 72.3 or the regulations of the Department of Health and Human Services, or any other agent that causes or may cause severe, disabling or fatal disease;
- 2 A diagnostic specimen, which is any human or animal material including, but not limited to, excreta, secreta, blood and its components, tissue and tissue fluids, being handled for purposes of diagnosis;
- 3 A biological product, which is any material prepared and manufactured in accordance with the provisions of 9 CFR parts 102, 103, or 104, or 21 CFR parts 312 or 600-680; and
- 4 A medical waste as defined in California Health and Safety Code Section 25023.2.

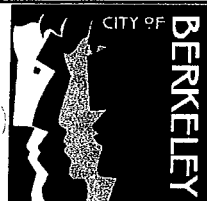
If your facility stores or handles an etiological agent on site, you must report the agent name, quantity and storage location to the Toxics Management Division.

Biological materials present at this building are either Risk Group 1 or Risk Group 2 materials and are handled at either Biosafety Level 1 (e.g., standard LBNL lab) or Biosafety Level 2 containment (e.g., lab with biosafety cabinet), respectively. Risk Group 1 materials are not associated with disease in healthy adult humans, while Risk Group 2 materials are associated with human disease that is rarely serious and for which interventions are often available. Common biological materials include Risk Group 1 microorganisms, established human cell cultures, attenuated (e.g., replication deficient) viral vectors, and very limited samples of human tissue. Some medical waste as defined by California Health and Safety Code 25023.2 is generated. One operation uses a limited quantity and number of Risk Group 2 human pathogens (e.g., bacteria). Diagnostic specimens, biological products, Risk Group 3 agents, Risk Group 4 agents, and select agents are not used.

II. Radioactive Materials:

Any quantity of Radioactive Materials must be reported on the Hazardous Materials Inventory-Chemical Description page of the Hazardous Materials Business Plan.

Radioactive materials reporting is consistent with state requirements. State requirements provide for reporting of radioactive materials that are handled in quantities for which an emergency plan would be required according to the Nuclear Regulatory Commission (NRC) or the State of California, Department of Health Services (DHS) regulations. There are no radioactive materials at LBNL for which such an emergency plan would be required. All radioactive materials, including those in mixed waste, have been considered for this reporting category.



City of Berkeley, Toxics Management Division
2118 Milvia Street, Suite 300
Berkeley, CA 94704
(510) 981-7460 FAX (510) 981-7470

For Dept Use Only – Log In/Date Stamp

Hazardous Materials Business Plan (HMBP) Certification Statement

I. IDENTIFICATION

FACILITY ID #

BUSINESS NAME (Same as Facility Name or DBA-Doing Business As)									
--	--	--	--	--	--	--	--	--	--

BUSINESS NAME (Same as Facility Name or DBA-Doing Business As)
E.O. Lawrence Berkeley National Laboratory Building 977-Berkeley West Biocenter

BUSINESS SITE ADDRESS 717 Potter Street

CITY

Berkeley

104

CA

ZIP CODE

94710 - 2722

II. CERTIFICATION STATEMENT

Check the appropriate boxes below and sign the certification statement.

- ☐ INITIAL SUBMITTAL: This new HMBP is being submitted for the following:
- ☐ New facility
 - ☐ Change of ownership
 - ☐ Change of business address
- ☐ ANNUAL CERTIFICATION: I have personally reviewed the HMBP currently on file with your agency, dated _____, and hereby certify, *under penalty of perjury*, that:
- The information contained in the most recent HMBP submission is complete, accurate and up to date.
 - A copy of the facility's most current Business Owner/Operator Identification page is being submitted with this certification form.
 - The facility has not begun handling any hazardous materials/hazardous wastes that are not currently listed on the most recently submitted Hazardous Materials Inventory forms.
 - There have been no significant changes (100% increase or decrease) in the quantities of any previously reported hazardous materials/hazardous wastes as reported on the most recently submitted Hazardous Materials Inventory forms.
 - The facility's annual waste amounts reported on the most recently submitted Hazardous Materials Inventory forms are accurate and expected to be the same in the next year.
 - This certification is not being made to meet annual inventory submission requirements of EPCRA. (EPCRA requires complete annual submission of the inventory, United States Code Title 42, Section 11022).
- ☒ CERTIFICATION OF CHANGES/REVISIONS: This is to certify that the HMBP has been reviewed and revisions, amendments and/or additions are necessary and are being submitted with this document. The following areas of the HBMP are affected:
- | | |
|--|---|
| <input type="checkbox"/> Entire HMBP revision | <input type="checkbox"/> Facility Site Plan/Storage Map(s) |
| <input type="checkbox"/> Business Activities page | <input type="checkbox"/> Emergency Response Plan/Contingency Plan |
| <input type="checkbox"/> Business Owner/Operator Identification page | <input type="checkbox"/> Other (Specify): _____ |
| <input checked="" type="checkbox"/> Hazardous Materials Inventory | |

I hereby certify, under penalty of perjury, that the information contained in this Hazardous Materials Business Plan is, to the best of my knowledge, true and correct. I understand that I will be required to show proof of compliance during any facility inspection conducted by City, County, State, or Federal authorities. I understand that whenever there are changes in address, ownership, business name, or operations (closure, addition of undisclosed hazardous materials or hazardous wastes, and/or contingency planning provisions), a notification of such must be made to the Toxics Management Division within 30 days of the change.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE

DATE _____

February 24, 2010

NAME OF SIGNER (print)

TITLE OF SIGNER

Doug Fleming

Director, EH&S Division

Agency Use Only

- ☐ HMBP accepted as submitted
☐ HMBP requires revisions – Letter sent

HMBP ACCEPTED: / / BY:

City of Berkeley, Toxics Management Division
UNIFIED PROGRAM CONSOLIDATED FORM -- FACILITY INFORMATION
BUSINESS OWNER/OPERATOR IDENTIFICATION

Page ____ of ____

I. IDENTIFICATION

FACILITY ID#														1	BEGINNING DATE 01/01/2010	100	ENDING DATE 12/31/2010	101			
BUSINESS NAME (Same as FACILITY NAME or DBA - Doing Business As)															3	BUSINESS PHONE 510-486-5099				102	
BUSINESS SITE ADDRESS 717 Potter Street																			103		
CITY Berkeley															104	CA	ZIP CODE 94710-2722				105
DUN & BRADSTREET 62-693-4998															106	SIC CODE (4 digit #) 8731				107	
COUNTY Alameda																			108		
BUSINESS OPERATOR NAME University of California															109	BUSINESS OPERATOR PHONE (510) 486-5514				110	

II. BUSINESS OWNER

OWNER NAME U.S. Dept. of Energy-Lawrence Berkeley National Laboratory Site Office	111	OWNER PHONE (510) 486-4353	112
OWNER MAILING ADDRESS One Cyclotron Road, Mail Stop 90R1023			
CITY Berkeley	114	STATE CA	115
		ZIP CODE 94720	116

III. ENVIRONMENTAL CONTACT

CONTACT NAME Ronald O. Pauer	117	CONTACT PHONE (510) 486-7614	118
CONTACT MAILING ADDRESS One Cyclotron Road, Mail Stop 85B0198			
CITY Berkeley	120	STATE CA	121
		ZIP CODE 94720	122

-PRIMARY-

IV. EMERGENCY CONTACTS

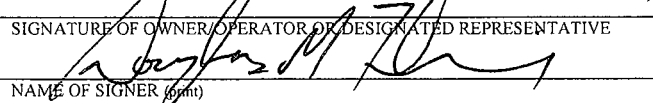
-SECONDARY-

NAME Emergency Contact Team	123	NAME Rocky Saunders	128
TITLE LBNL 24/7 Emergency Contact Team	124	TITLE Emergency Services Manager	129
BUSINESS PHONE Non-emergency (510) 486-4050	125	BUSINESS PHONE (510) 486-7032	130
24-HOUR PHONE Emergency (510) 486-6999	126	24-HOUR PHONE (510) 812-1517 cell	131
PAGER #	127	PAGER # N/A	132

ADDITIONAL LOCALLY COLLECTED INFORMATION:

* Landlord (Wareham Development) Security Officers also patrol site. Phone Numbers
 510-734-4786 & 510-367-7800
 *Wareham Development Contact: Chris Barlow at 415-457-4964

Certification: Based on my inquiry of those individuals responsible for obtaining the information, I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the information is true, accurate, and complete.

SIGNATURE OF OWNER/OPERATOR OR DESIGNATED REPRESENTATIVE 	DATE February 24, 2010	NAME OF DOCUMENT PREPARER Jack J. Salazar	135
NAME OF SIGNER (print) Doug Fleming	136	TITLE OF SIGNER Director, EH&S Division	137

Non-Waste Hazardous Materials Inventory Statement

For use by Unidocs Member Agencies or where approved by your Local Jurisdiction

Date: 2/24/2010

Business Name: E.O. Berkeley National Laboratory (LBNL) - Offsite Bldg. 977										Type of Report on This Page: <input type="checkbox"/> Add; <input type="checkbox"/> Delete; <input checked="" type="checkbox"/> Revise		Page 3 of 10 (One page per building or area)	
Chemical Location: 1 st & 2 nd floor (Building/Storage Area)		EPCRA Confidential Location? Trade Secret Information?		Facility ID # (Agency Use Only)		-		-					
1.	2.	3.	4. Hazardous Components (For mixtures only)		5.	6. Quantities		7.		8.		9.	
Haz. Class	Map and Grid or Location Code	Common Name	Chemical Name	Wt. %	EHS	CAS No.	Type and Physical State	Max. Daily	Average Daily	Largest Cont.	Units	Storage Codes	Hazard Categories
2.2	Labs - first and second floor	Liquid Nitrogen (cryogenic nitrogen)					<input checked="" type="checkbox"/> pure <input type="checkbox"/> mixture	4000	3000	60.8	<input checked="" type="checkbox"/> gallons <input type="checkbox"/> pounds <input type="checkbox"/> cu. feet <input type="checkbox"/> tons	<input type="checkbox"/> ambient <input checked="" type="checkbox"/> > amb. <input type="checkbox"/> < amb. <input checked="" type="checkbox"/> cryogenic	<input type="checkbox"/> fire <input type="checkbox"/> reactive <input checked="" type="checkbox"/> pressure release <input checked="" type="checkbox"/> acute health <input type="checkbox"/> chronic health <input type="checkbox"/> radioactive
		CAS No.: 7440-59-7					<input type="checkbox"/> solid <input checked="" type="checkbox"/> liquid <input type="checkbox"/> gas	Curies: (if radioactive)	Days On Site: 365	Storage Container: L			
2.2	Labs on 2 nd floor	nitrogen					<input checked="" type="checkbox"/> pure <input type="checkbox"/> mixture	4000	3450	228	<input type="checkbox"/> gallons <input type="checkbox"/> pounds <input checked="" type="checkbox"/> cu. feet <input type="checkbox"/> tons	<input type="checkbox"/> ambient <input checked="" type="checkbox"/> > amb. <input type="checkbox"/> < amb. <input checked="" type="checkbox"/> cryogenic	<input type="checkbox"/> fire <input type="checkbox"/> reactive <input checked="" type="checkbox"/> pressure release <input checked="" type="checkbox"/> acute health <input type="checkbox"/> chronic health <input type="checkbox"/> radioactive
		CAS No.: 7440-59-7					<input type="checkbox"/> solid <input checked="" type="checkbox"/> liquid <input type="checkbox"/> gas	Curies: (if radioactive)	Days On Site: 365	Storage Container: L			
2.2	Labs on second floor	Oxygen					<input checked="" type="checkbox"/> pure <input type="checkbox"/> mixture	50	50	50	<input type="checkbox"/> gallons <input type="checkbox"/> pounds <input checked="" type="checkbox"/> cu. feet <input type="checkbox"/> tons	<input type="checkbox"/> ambient <input checked="" type="checkbox"/> > amb. <input type="checkbox"/> < amb. <input checked="" type="checkbox"/> cryogenic	<input type="checkbox"/> fire <input type="checkbox"/> reactive <input checked="" type="checkbox"/> pressure release <input checked="" type="checkbox"/> acute health <input type="checkbox"/> chronic health <input type="checkbox"/> radioactive
		CAS No.: 7782-44-7					<input type="checkbox"/> solid <input checked="" type="checkbox"/> liquid <input type="checkbox"/> gas	Curies: (if radioactive)	Days On Site: 365	Storage Container: L			
3.2	Labs on second floor	Dimethyl sulfoxide					<input type="checkbox"/> pure <input type="checkbox"/> mixture	137	137	132	<input checked="" type="checkbox"/> gallons <input type="checkbox"/> pounds <input type="checkbox"/> cu. feet <input type="checkbox"/> tons	<input checked="" type="checkbox"/> ambient <input type="checkbox"/> > amb. <input type="checkbox"/> < amb. <input type="checkbox"/> cryogenic	<input type="checkbox"/> fire <input type="checkbox"/> reactive <input checked="" type="checkbox"/> pressure release <input checked="" type="checkbox"/> acute health <input type="checkbox"/> chronic health <input type="checkbox"/> radioactive
		CAS No.: 67-68-5					<input type="checkbox"/> solid <input checked="" type="checkbox"/> liquid <input type="checkbox"/> gas	Curies: (if radioactive)	Days On Site: 365	Storage Container: M			
3.2	Labs on second floor	Methanol					<input checked="" type="checkbox"/> pure <input type="checkbox"/> mixture	80	72	5	<input checked="" type="checkbox"/> gallons <input type="checkbox"/> pounds <input type="checkbox"/> cu. feet <input type="checkbox"/> tons	<input checked="" type="checkbox"/> ambient <input type="checkbox"/> > amb. <input type="checkbox"/> < amb. <input type="checkbox"/> cryogenic	<input type="checkbox"/> fire <input type="checkbox"/> reactive <input checked="" type="checkbox"/> pressure release <input checked="" type="checkbox"/> acute health <input type="checkbox"/> chronic health <input type="checkbox"/> radioactive
		CAS No.: 67-56-1					<input type="checkbox"/> solid <input checked="" type="checkbox"/> liquid <input type="checkbox"/> gas	Curies: (if radioactive)	Days On Site: 365	Storage Container: M			
3.2 (with few 3.1)	2nd floor	Assorted, pure Flammable Liquids (such as ethanol) - AGGREGATE SUM					<input checked="" type="checkbox"/> pure <input type="checkbox"/> mixture	160	140	22	<input checked="" type="checkbox"/> gallons <input type="checkbox"/> pounds <input type="checkbox"/> cu. feet <input type="checkbox"/> tons	<input checked="" type="checkbox"/> ambient <input type="checkbox"/> > amb. <input type="checkbox"/> < amb. <input type="checkbox"/> cryogenic	<input type="checkbox"/> fire <input type="checkbox"/> reactive <input checked="" type="checkbox"/> pressure release <input checked="" type="checkbox"/> acute health <input type="checkbox"/> chronic health <input type="checkbox"/> radioactive
		CAS No.: EHS					<input type="checkbox"/> solid <input checked="" type="checkbox"/> liquid <input type="checkbox"/> gas	Curies: (if radioactive)	Days On Site: 365	Storage Container: M & N			

If EPCRA, sign below:

* Code	Storage Type	Code	Storage Type	Code	Storage Type	Code	Storage Type	Code	Storage Type
A	Aboveground Tank	D	Steel Drum	J	Bag	M	Glass Bottle or Jug	P	Tank Wagon
B	Belowground Tank	E	Plastic/Non-metallic Drum	K	Box	N	Plastic Bottle or Jug	Q	Rail Car
C	Tank Inside Building	F	Can	L	Cylinder	O	Tote Bin	R	Other

UNIVERSAL WASTE GENERATOR REPORTING FORM

(Please see *Universal Waste Reporting Requirements* sheet for explanation and abbreviations.)

Facility Name and Address: E.O. Lawrence Berkeley National Laboratory - Offsite Bldg. 977
(Including our main site) 717 Potter Street, Berkeley CA 94720

EPA ID# (required for LQHUWs, and UW Dismantlers and Processors): _____

Reporting Period: Calendar Year 2009 ; January 1 through December 31

All quantities of the following Universal Wastes must be reported:	Pounds per Year
1. Batteries	7877.10 lbs
2. Fluorescent bulbs*	1739.5 lbs
3. Other mercury containing bulbs	
4. Cathode ray tubes (CRTs, televisions and computer monitors that are not flat screened)	42,380 lbs
5. Plasma and LCD televisions	
6. Consumer electronic devices (including cell phones, telephones, pagers and computer equipment)	56,300 lbs
7. Dental amalgam wastes	
8. Nonempty aerosol cans	
9. Mercury thermometers	17.7 lbs
10. Mercury switches (including vehicle switches)	32.2 lbs
11. Mercury thermostats	5.0 lbs
12. Mercury pressure or vacuum gauges	
13. Mercury-added novelties (i.e. lighted shoes)	
14. Mercury counterweights and dampers	
15. Mercury-added dilators and weighted tubing	
16. Mercury-added rubber flooring	
17. Mercury gas-flow regulators	
Annual Throughput-Total Pounds:	108,351.5

* Fluorescent bulb generation may be reported in feet, but please indicate the units used.

Emergency Response Plan/Contingency Plan

Page 1 of 3

The following items are elements of a comprehensive emergency response/contingency plan that meets state requirements. If your facility has a written plan, or if you are to prepare one, make sure all the elements listed are covered by your plan. Small facilities with simple operations may complete the boxes below to be in compliance with the written emergency plan requirement. Please submit a copy of your written response plan or complete and submit this form.

I. Facility Information

Facility Name: E.O. Lawrence Berkeley National Laboratory, Bldg 977 (offsite)	Phone: (510) 486-5099
Address: 717 Potter Street	
City: Berkeley	Zip: 94710-2722

II. Emergency Coordinators

Primary Coordinator	Secondary Coordinator
Name: Alameda County Fire Department	Name: Emergency Contact Team
Title: Incident Commander	Title: LBNL 24/7 Emergency Contact Team
Work Phone: (925) 447-4257	Work Phone: Non-emergency (510) 486-4050
After hours Phone: 9-911	After hours Phone: Emergency (510) 486-6999
Pager: N/A	Pager: N/A

III. Emergency Telephone Numbers and Arrangements

The emergency coordinator shall immediately notify the following whenever a release, fire, or explosion threatens human health or the environment:

Agency	Phone
Fire Department	911
State Office of Emergency Services (OES)	1-800-852-7550
City of Berkeley Toxics Management Division	(510) 981-7460 or 911
Hospital/Medical Center (if injuries)	Alta Bates Hospital (510) 204-1303
EBMUD Waste Water Treatment Facility (if to sewer)	(510) 287-1651
Hazardous Waste Contractor (if clean up needed)	Veolia Environmental Services (800) 325-2382
Bay Area Air Quality Management District	(800) 334-6367 or (415) 771-6000
Other agencies:	

Arrangements: (Please check one box)

- ☐ We have no formalized written agreements with any emergency response agency or contractor.
- ☒ We have formalized written agreements with LBNL participates in the State Mutual Aid Agreement
- Telephone: (510) 486-9911 for emergency response.

IV. Earthquake Response

Identify the areas and/or mechanical equipment or other systems that could require immediate inspection or isolation because of their vulnerability to earthquake related ground motion.

Areas/equipment identified to be inspected immediately after an earthquake:	Areas or equipment generally vulnerable to earthquake-related ground motion include chemical storage areas/cabinets, gas cylinders and dewars, waste collection and storage areas, cold storage and water systems.
---	--

Emergency Response Plan/Contingency Plan

Page 2 of 3

V. Emergency Equipment Inventory Table

EQUIPMENT CATEGORY	Equipment ✓ if these are provided	Location*	Description**
Personal Protective Equipment, Safety Equipment, First Aid Equipment	✓ Chemical Protective Boots	Labs	In some spill kits as appropriate for the area.
	✓ Chemical Protective Gloves	All labs	Nitrile.
	✓ Safety Glasses/Goggles/Face shields	All labs	ANSI rated with side shields.
	✓ Chemical Protective Clothing	All labs	Lab coats. Some plastic and rubber aprons.
	✓ Hard Hats	Bldg Mgr	More than 4.
	✓ Chemical Monitoring Equipment (describe)	None on site	Industrial Hygiene services always available from LBNL.
	✓ First Aid Kits	Outside labs	Plus portable trauma kits in break rooms (289L & 111) and mail rooms (152 & 225A).
	✓ Eye Wash Stations	In labs	See evacuation maps for locations.
	✓ Safety Showers	In labs	See evacuation maps for locations.
	✓ Cartridge Respirators and Cartridges (describe)	None on site	Industrial Hygiene services always available from LBNL.
	✓ Self-Contained Breathing Apparatus (SCBA)	None on site	Industrial Hygiene services always available from LBNL.
	✓ Other (describe)		The Fire Dept at Bldg 48 maintains haz material response capability/ equipment.
Fire Extinguishing Systems	✓ Fire Extinguishers	Main corridors	Located throughout the bldgs (see evacuation maps).
	✓ Automatic Fire Systems	Throughout	Fire detectors and sprinklers throughout.
	✓ Fire Alarm Boxes	At exit doors	Including main internal corridor exits.
Spill Control Equipment, Decontamination Equipment	✓ Absorbents, Neutralizers (describe)	Labs	In spill kits.
	✓ Shovels/Brooms/Squeegees	Labs	Brooms only.
	✓ Overpack drum/Spill drum		Fire Dept & Waste Accumulation Areas (WAAs) maintain appropriate equipment.
	✓ Berms/Dikes (describe)	Labs	In spill kits.
	✓ Decontamination Equipment (describe)	Labs	Safety showers and eye washes
	✓ Gas cylinder leak repair kits (describe)	Bldg Mgr	Teflon tape, wrenches, soap for testing
Communications and Alarm Systems	Telephones	Throughout	A site-wide communications system is maintained and connected to 911 Dispatch.
	Intercoms/PA systems		
	✓ Portable 2 way radios	Bldg Mgr	Security Guard also.
	UST leak detection monitors		
	Chemical alarms (describe)		
Additional Equipment (Use additional pages if needed)			

* If appropriate, use the location code(s) from your Hazardous Materials Business Plan.

** Describe the equipment, such as type and quantity, and its capabilities. If applicable, specify any testing/maintenance procedures/intervals.

Emergency Response Plan/Contingency Plan

Page 3 of 6

VI. Evacuation Information:

Evacuation Announcement	<input type="checkbox"/> Bell <input type="checkbox"/> PA System Other <u>Building Emergency Teams</u> <input checked="" type="checkbox"/> Horn <input checked="" type="checkbox"/> Shouting
Evacuation Route	<input checked="" type="checkbox"/> Map Other <u>Site and Building Evacuation Plans</u>
Assembly Area	Location: <u>To north of building as designated on the attached map.</u>
Re-entry Procedures	Only as authorized by the incident commander/fire department.

VII. Emergency Procedures:

Emergency Coordinator Responsibilities:

1. Whenever there is an imminent or actual emergency situation such as a explosion, fire, or release, the emergency coordinator (*or his/her designee when the emergency coordinator is on call*) shall:
 - a. Identify the character, exact source, amount, and aerial extent of any released hazardous materials.
 - b. Assess possible hazards to human health or the environment that may result from the explosion, fire, or release. This assessment must consider both direct and indirect effects (*e.g. the effects of any toxic, irritating, or asphyxiating gases that are generated, the effects of any hazardous surface water run-off from water or chemical agents used to control fire, etc.*).
 - c. Activate internal facility alarms or communications systems, where applicable, to notify all facility personnel.
 - d. Notify appropriate local authorities (*i.e., call 911*).
 - e. Notify the State Office of Emergency Services at 1-800-852-7550.
 - f. Monitor for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment shut down in response to the incident.
 - g. Take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous materials at the facility.
2. Before facility operations are resumed in areas of the facility affected by the incident, the emergency coordinator shall:
 - a. Provide for proper storage and disposal of recovered waste, contaminated soil or surface water, or any other material that results from a explosion, fire, or release at the facility.
 - b. Ensure that no material that is incompatible with the released material is transferred, stored, or disposed of in areas of the facility affected by the incident until cleanup procedures are completed.
 - c. Ensure that all emergency equipment is cleaned, fit for its intended use, and available for use.
 - d. Notify the Cal/EPA's Department of Toxic Substances Control and the City of Berkeley Toxics Management Division that the facility is in compliance with requirements 2-a and 2-b, above.

Special site specific procedures:

Emergency	Response Action
Hazardous Material & Hazardous Waste Spills/Releases:	Procedures included in the State of Calif Dept of Toxic Substances Control and Alameda County Haz Mat Plan. Note, however, that no waste will be transported between 717 Potter St. and the main LBNL site. In the event of a spill, the Blackberry Gate Security (24 hrs at 486-5472) will be contacted to initiate LBNL Emergency Contact Team (ECT) procedures for spill response backup and cleanup.
Fire	Call 9911
Explosion	Call 9911
Earthquake	Call 9911. If safe to do so, check chemical storage & waste areas, including gas cylinders.
Other	Call 9911

Employee Training Plan

1. Scope

This plan is designed to provide employees with training on hazardous materials and hazardous waste that will satisfy the requirements of the California Health and Safety Code Chapter 6.95 and Chapter 6.5.

Facility Name:	E.O. Lawrence Berkeley National Laboratory
Address:	717 Potter St, Berkeley CA 94710-2722
Main Activity:	Scientific Research
Building or Areas where hazardous materials/wastes are found:	See Appendix B
	See pages "Non-Waste Hazardous Materials Inventory Statement".

2. Responsibilities

The following persons are responsible for ensuring that this Training Plan is implemented:

Name/Title	Training Responsibility
Don Lucas	EH&S Division Deputy

3. Employees/New Employees

New employees are trained during orientation, before starting on a job? ☒ YES ☐ NO

New employees who handle hazardous waste are trained in hazardous waste management within six months of hire date? ☒ YES ☐ NO

4. New Assignments or Changes in Operations

In the event of new assignments or of changes in operation, affected employees are trained before the new assignment or the change in operation takes place. ☒ YES ☐ NO

5. Refresher Training

Refresher training will be provided as needed. The method used will be: *(check all that apply)*
how often

- | | |
|---|---|
| <input checked="" type="checkbox"/> Outside classes | <input checked="" type="checkbox"/> In-house classes provided by contractor |
| <input checked="" type="checkbox"/> Safety meetings | <input checked="" type="checkbox"/> In-house classes conducted by in-house trainers |

6. Training Topics

The following table indicates the training topics covered for this facility, as indicated with a ☒. Other documentation on these training topics is maintained and are available to the inspector upon request.

All employees are trained to do the following procedures, as appropriate:	
<input checked="" type="checkbox"/>	1. Initiate, activate, or recognize internal alarms and other emergency announcements.
<input checked="" type="checkbox"/>	2. Notify internal or on-site emergency responders listed in the emergency response/contingency plan.
<input checked="" type="checkbox"/>	3. Notify agencies listed in the emergency/contingency plan.
<input checked="" type="checkbox"/>	4. Locate and review contents of written emergency response/contingency plan.
<input checked="" type="checkbox"/>	5. Initiate, conduct, or follow evacuation procedures as described in the emergency response/contingency plan.
Hazardous materials/waste handlers are additionally trained in the following subjects:	
<input checked="" type="checkbox"/>	1. Safe methods for handling and storage of hazardous materials and hazardous waste.
<input checked="" type="checkbox"/>	2. Locations and proper use of personal protective equipment.
<input checked="" type="checkbox"/>	3. Locations and proper use of fire and spill control equipment.
<input checked="" type="checkbox"/>	4. Specific hazards of each chemical or waste to which they may be exposed, including the pathways of exposure (i.e. skin absorption, inhalation, ingestion).
<input checked="" type="checkbox"/>	5. Follow emergency procedures for chemical/waste spills, earthquake, fire, and/or medical emergencies as described in the emergency response/contingency plan.
<input checked="" type="checkbox"/>	6. Hazardous waste handlers/managers are also trained in all aspects of hazardous waste management specific to their job duties (e.g. accumulation time, storage period, labels, inspection of containers and storage areas, uniform hazardous waste manifests, etc.)

7. Emergency Response Team

This facility has a formally organized Emergency Response Team.

☒ YES ☐ NO

Emergency Response Team members are additionally trained for the following activities:	
<input checked="" type="checkbox"/>	1. Personnel rescue procedures.
<input checked="" type="checkbox"/>	2. Shutdown of operations.
<input checked="" type="checkbox"/>	3. Liaison with emergency response agencies.
<input checked="" type="checkbox"/>	4. Use, maintenance, and replacement of emergency response equipment.
<input checked="" type="checkbox"/>	5. Emergency response drills are conducted, at least (<i>specify frequency</i>) [one] times a year.
<input checked="" type="checkbox"/>	6. Refresher training is provided, at least annually.

8. Recordkeeping

Employee training and other records are to be maintained at the facility. These include the following:

<input checked="" type="checkbox"/>	1. Record of training for each employee (date and duration of training, subject matter covered, instructor, etc.).
<input checked="" type="checkbox"/>	2. Training records of current and former employees. (For current employees, records are to be retained until closure of the facility. For former employees, training records are to be retained for at least 3 years after termination of employment.
<input checked="" type="checkbox"/>	3. Description of introductory and continuing training programs for each employee classification.
<input checked="" type="checkbox"/>	4. Current emergency response, contingency, and/or spill response plan (for underground or aboveground tanks).
<input checked="" type="checkbox"/>	5. Description and documentation of emergency response drills.
<input checked="" type="checkbox"/>	6. Record of reportable/recordable accidental releases of hazardous material/waste.
<input checked="" type="checkbox"/>	7. Record of inspections of hazardous material/waste storage areas.
<input checked="" type="checkbox"/>	8. Record of daily inspection of hazardous waste tanks.
<input checked="" type="checkbox"/>	9. Inspection procedures for identified earthquake-sensitive areas and systems in the facility.

Note: The above list does not necessarily include every type of record required to be maintained by your facility.

Training records are maintained in the following location: Institutional computer database; contact Jack Salazar (486-6571) for more information.